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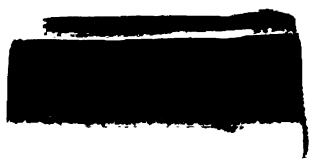
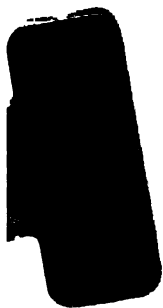
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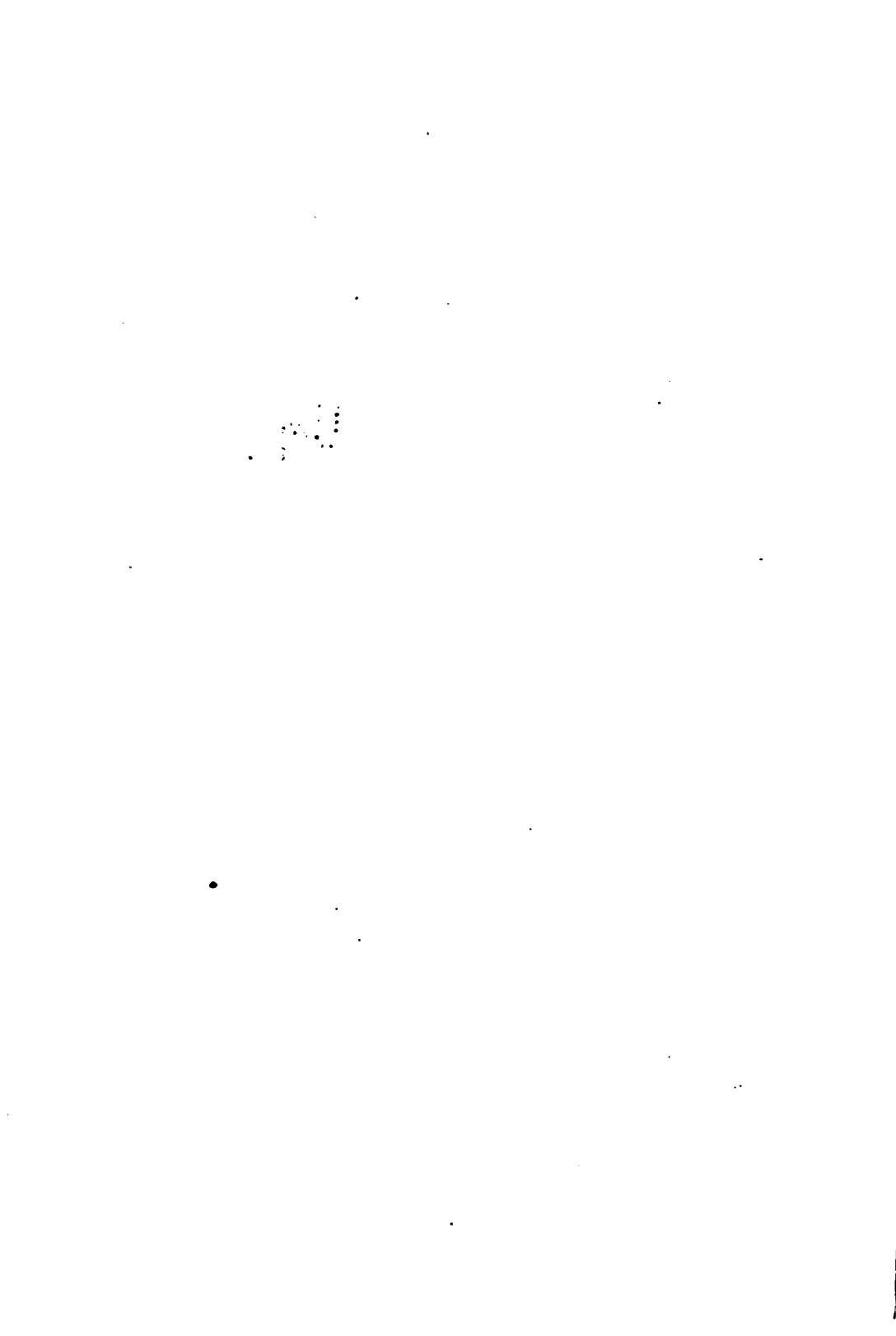
SUPPLEMENT
TO THE
ANNUAL REPORT
OF THE
State Engineer and Surveyor
OF THE
STATE OF NEW YORK

For the Fiscal Year Ended June 30, 1917



TRANSMITTED TO THE LEGISLATURE JANUARY 28, 1918

ALBANY
J. B. LYON COMPANY, PRINTERS
1918



REPORT

ON

HYDRAULIC DATA
1917

**DEPARTMENT OF STATE ENGINEER AND
SURVEYOR**

**COMPRISING THE EIGHTEENTH ANNUAL REPORT ON
STREAM GAGING**

M. W. GRIMES,
Assistant Engineer

N. Y. St. Engineer & Survey. 5-15-1919.

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REPORT ON STREAM GAGING FOR 1917

Hon. FRANK M. WILLIAMS, *State Engineer and Surveyor*:

Sir.—I have the honor to submit a report on, and the results of the hydraulic work of the Department of State Engineer and Surveyor for the fiscal year ended June 30, 1917.

Mr. G. Edward Gibson was in charge of this work from October, 1914, to May 8, 1917, when, having been commissioned a Lieutenant-Colonel, United States Reserves, he was ordered to report at Madison Barracks. Since that time the work has been in charge of the undersigned.

This report contains hydraulic and climatological data obtained during that period, as follows: Observations of water-surface elevations, records of the discharge of streams and precipitation in the Barge canal zone, collected by this Department; gaging records of streams throughout the state, furnished by the United States Geological Survey in coöperation either with this Department or with the New York State Conservation Commission; stream discharge and precipitation, mainly in the Catskill watersheds, supplied by the Board of Water Supply of the city of New York; United States Weather Bureau records, and other stream gagings furnished by corporations or individuals. Credit for same, where due, is given in connection with the several station records. The aim of this report has been to publish not simply data secured by this Department but all available stream flow data in the state during the year in one volume for the convenience of the public. This comprehensive treatment does not apply, however, to rainfall records.

During the year a number of old staff gages have been replaced by the standard vertical staff gages recently adopted by this Department. Most of these gages show directly the elevation of the water-surface above Barge canal datum, but a few that are distant from Barge canal benches are not set to this datum and

show gage heights only. At most of these new gages a standard bench-mark plug has been placed near the gage for the purpose of checking or resetting the gage. The standard types of gages and bench-marks adopted by this Department are illustrated in this volume (Plate X) and also in the book of "Instructions Regarding Stream Gages," published by the Department in pamphlet form. Type A and Type B gages in the station descriptions are those illustrated on Plate X.

The system of monthly reports by gage readers has been replaced wherever practicable by a system of quarterly reports in book form. These books are of convenient pocket size. Each observer is required to make the original record in the book at the time the reading is made. A copy of the record for each week is forwarded to this office on post cards provided for that purpose. The few instances where the old form of report is retained are mostly at power-plants, where special forms are required.

Gages located at points convenient to Barge canal locks, dams or other structures, where employees of the Department of Public Works are stationed, are read by these men.

The publication of gage heights in connection with discharge tables furnished by the United States Geological Survey has been discontinued, except for stations on streams tributary to the Barge canal system.

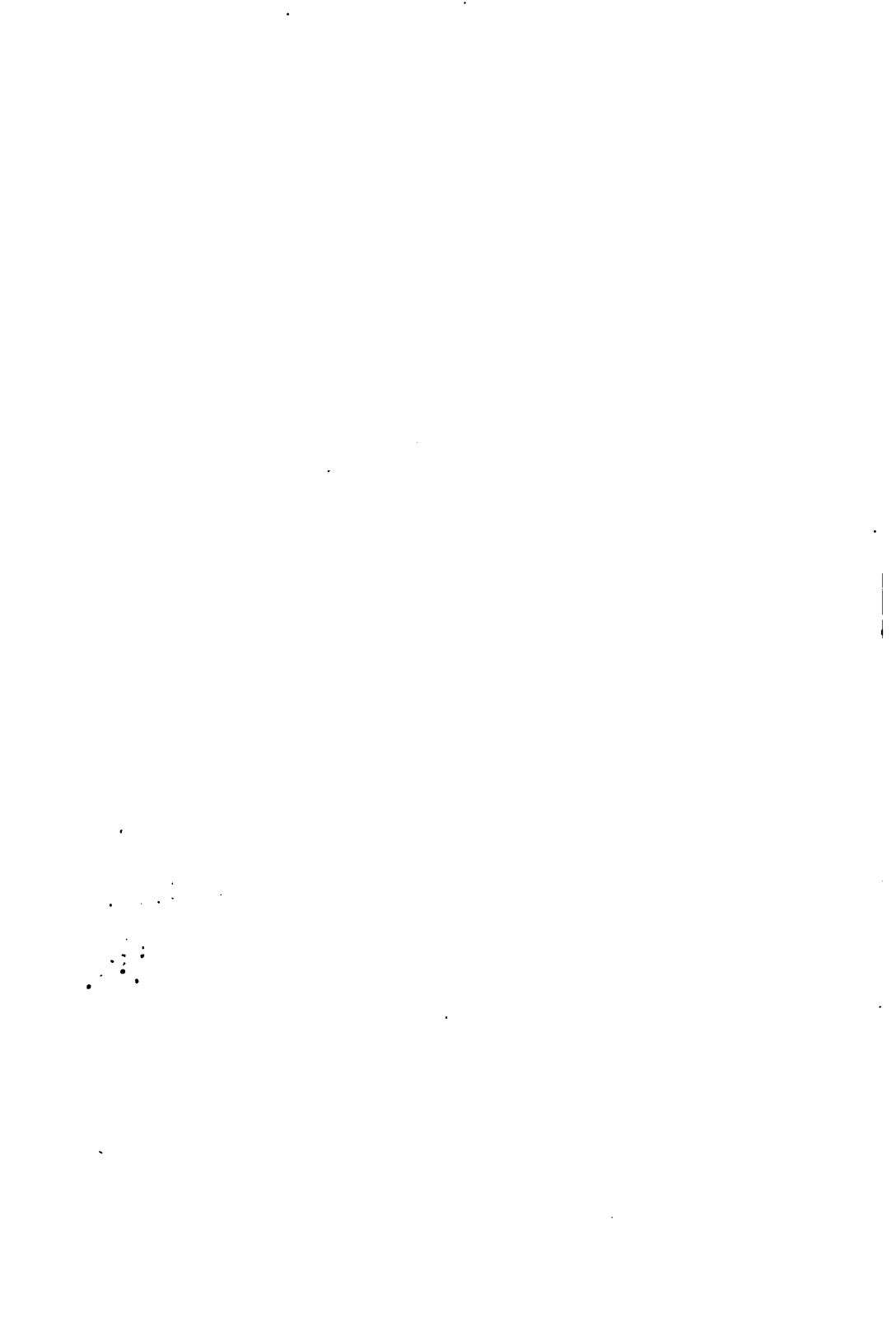
Stream measurement work for the state of New York is done in two ways: First, actually by the Department of the State Engineer and Surveyor in the Barge canal zone; second, throughout the remainder of the state by the United States Geological Survey under Mr. C. C. Covert, District Engineer, funds for which work during the fiscal year ended June 30, 1917, were supplied as follows: By the Department of the State Engineer and Surveyor, \$1,500; New York State Conservation Commission, \$10,000; United States Geological Survey, \$2,500.

The report of Mr. C. C. Covert, District Engineer, covering the work of the United States Geological Survey in cooperation with the State of New York for the year ended June 30, 1917, will be found following this report. (See page 11.)

PLATE I-A.



TYPICAL GAGING STATIONS
a. For bridge measurement



SCOPE

This report contains records from 192 stream gaging stations, at 75 of which discharge is obtained, and 53 precipitation stations, maintained as shown below:

MAINTAINED BY	Stream stations	Discharge records	Precipitation stations
	No.	No.	No.
Department of State Engineer.....	126	15	2
U. S. Geological Survey with Department of State Engineer..	9	9	.....
U. S. Geological Survey with State Conservation Commission..	44	43	.....
Board of Water Supply of New York City.....	5	5	38
U. S. Weather Bureau with Department of State Engineer...	.....	.....	7
Miscellaneous.....	8	3	6
Totals.....	192	75	53

Gages maintained by this Department to determine water-surface elevations are in general read to the nearest tenth foot with only occasional half-tenth foot readings (there are a few gages read in inches) and the hundredths of feet appearing in the tables of water-surface elevations are due to the elevations of the zero of the gage and should not be understood to indicate readings to hundredths of feet. The closeness to which readings are made will be evident upon an inspection of each table.

In a report of this kind, where the accuracy of the data from which the tables and computations are made depends largely on the care of the observers at the various stations and on natural conditions affecting stream flow, apparent inconsistencies will be found, but it is believed that the observers are in general faithful in the performance of their duties and that such errors as may occur do not seriously impair the value of the records.

For an explanation of the data you are referred to those sections of the report of Mr. C. C. Covert, District Engineer, United States Geological Survey, headed "Explanation of Data," and "Accuracy and Reliability of Data" (pp. 14-17), which cover the same ground and render a repetition here needless.

In closing I wish to acknowledge the uniform courtesy and valuable assistance I have received from Mr. Covert, and his assistants in connection with this work.

Mr. Covert's report of the work of the United States Geological Survey in coöperation with the State of New York, a statement defining certain hydraulic terms used, a table of convenient equivalents, the hydraulic data and the climatological data are attached hereto in the order named.

Respectfully submitted,

M. W. GRIMES,

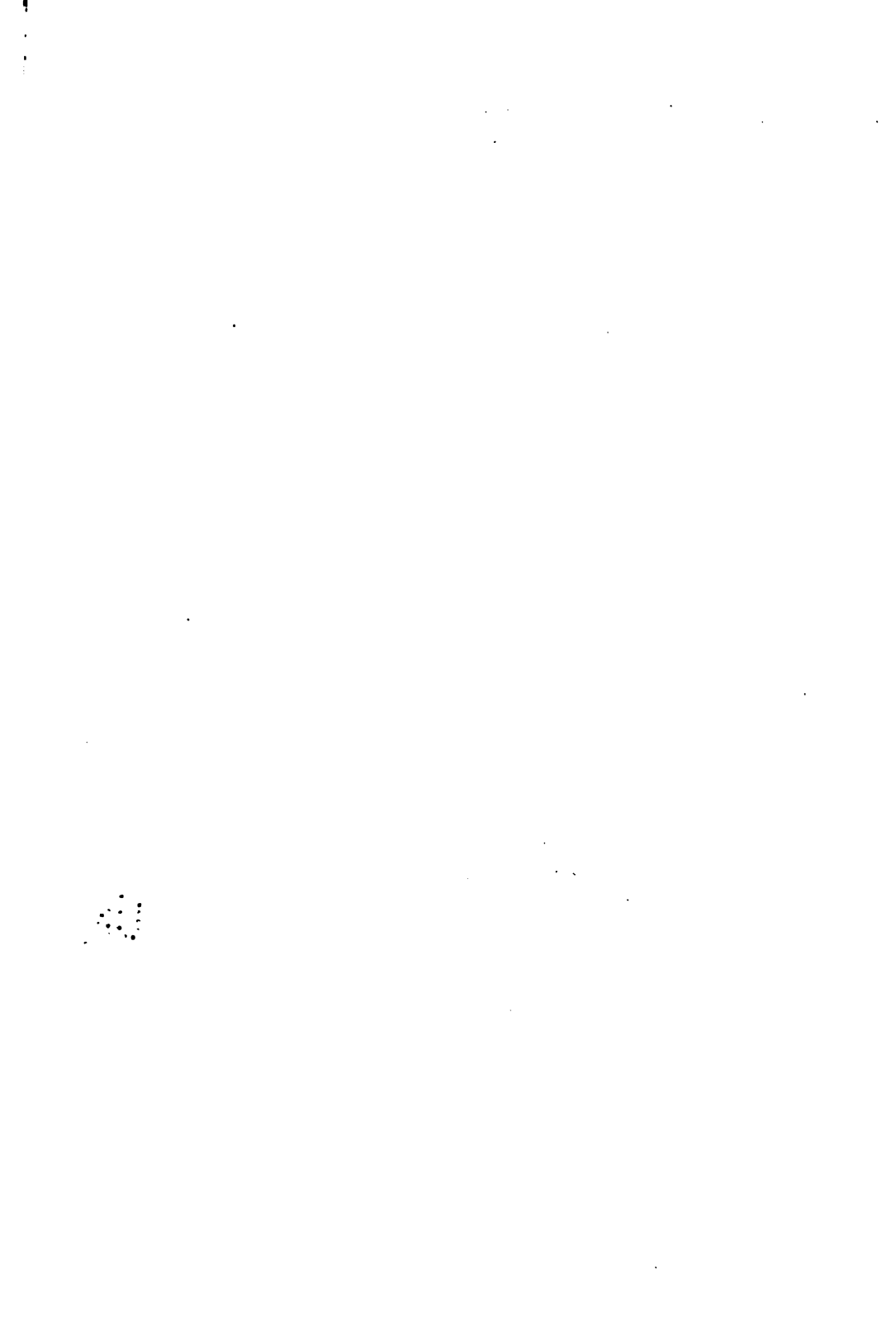
Assistant Engineer.

September 15, 1917.

PLATE I-B.



TYPICAL GAGING STATIONS
b. For wading measurement



REPORT OF UNITED STATES GEOLOGICAL SURVEY

DEPARTMENT OF THE INTERIOR

UNITED STATES GEOLOGICAL SURVEY

WATER RESOURCES BRANCH

ALBANY, N. Y., August 25, 1917.

HON. FRANK M. WILLIAMS, *State Engineer and Surveyor, Albany,
N. Y.:*

Dear Sir.—Transmitted herewith is a report on the coöperative hydrometric work carried on by the United States Geological Survey and the State of New York during the fiscal year ended June 30, 1917. The work is done in coöperation with both your Department and the Conservation Commission.

The report submitted has been prepared under my direction by O. W. Hartwell, Assistant Engineer, assisted by E. D. Burchard, A. H. Davison*, J. W. Moulton, C. S. DeGolyer, W. A. James and Helen Kimmey.

Mr. N. C. Grover, Chief Hydraulic Engineer of the Survey, and Mr. John C. Hoyt, Engineer in charge Water-Surface Investigations, have had general supervision of the work and have been consulted freely.

I wish to make acknowledgment here of the assistance rendered by the engineers of your Department and of the Conservation Commission.

Respectfully yours,

C. C. COVERT,

District Engineer, New York District.

* Now 2nd Lieutenant with the Pioneer Regiment of Engineers.

PROGRESS REPORT ON HYDROMETRIC WORK CARRIED ON BY THE
UNITED STATES GEOLOGICAL SURVEY IN COÖPERATION
WITH THE STATE ENGINEER AND SURVEYOR
AND THE STATE CONSERVATION
COMMISSION

By C. C. COVERT, *District Engineer*

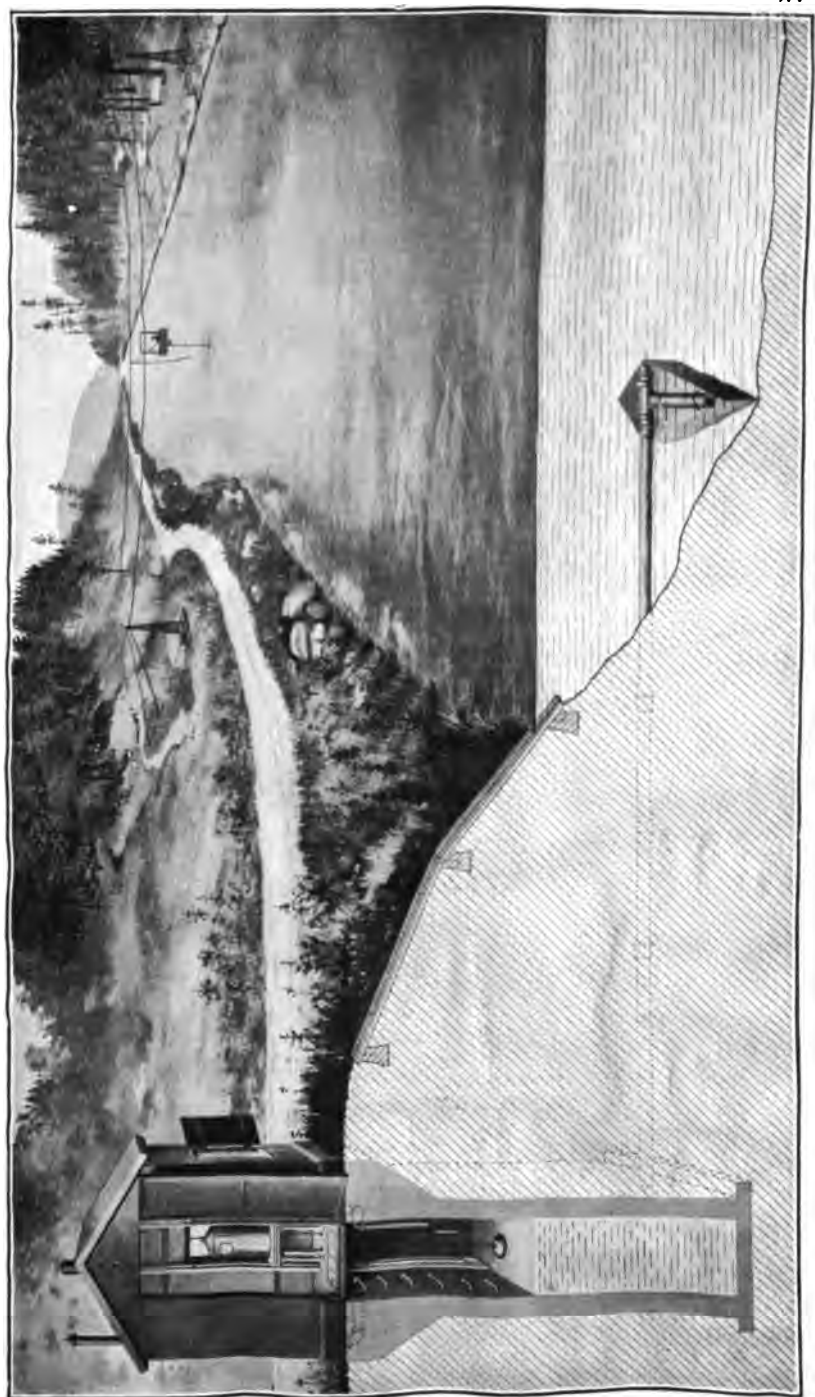
The data included in this report cover the fiscal year ended June 30, 1917. The records published are from 55 stations that were maintained, some for the entire twelve months, others for shorter periods.

Climatic conditions were unusual. The records show no real low-water flows and no damaging flood conditions. It was only for a brief period in July and August that the water was low enough to cause inconvenience to the hydro-electric plants. The rains that usually come in March and April were entirely lacking. The United States Weather Bureau records show that the precipitation for these months was the lowest on record for this season of the year.

The ice, which at many stations formed about the middle of December and remained during the entire winter, gradually melted and disappeared from the effect of the sunshine and higher temperatures that came with the longer days. These conditions are much more favorable to good records of stream flow than are those of the usual winters, when frequent break-ups occur. With our better knowledge of handling these winter conditions, we were able to maintain a greater number of stations with less expense and to obtain better records.

During the year, 444 discharge measurements were made, 430 being at regular stations. The number of monthly records was increased by 15 per cent and the cost per month's record decreased 2 per cent notwithstanding the marked increase in the cost of labor, material, transportation and supplies.

Three water-stage recorders were installed during the year, bringing the total number of these stations up to 19. Such equipment will eventually be installed at each base station and at such other stations as require it.



Cross-section of typical gaging station

100

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With but two exceptions—West branch of Ausable river near Newman and West branch of Onondaga creek near South Onondaga—all of the discharge measurement stations have been rated. Several stations were discontinued because of excessive cost of up-keep due to shifting channel conditions. On some streams it was found to be practical to relocate the station and thus to continue the record at practically the same point as far as drainage area was concerned.

The funds available from each cooperating bureau were:

Conservation Commission.....	\$10,000.00
State Engineer and Surveyor.....	1,500.00
United States Geological Survey.....	2,500.00*

In the Conservation Commission allotment, where the budget system prevails, the fund for observers' salaries was inadequate. This deficiency was met by a number of power companies, who appreciate the value of continuous records. The power companies contributing were:

Adirondack Electric Power Corporation,
 Black River Power Association,
 Deposit Electric Company,
 Finch, Pruyn and Company,
 International Paper Company,
 International Pulp Company,
 Newton Falls Paper Company,
 Rochester Railway and Light Company,
 The Benson Mines Company,
 Union Bag and Paper Company.

Those companies which contributed records are given credit in the proper station description.

The funds actually expended during the year were:

Conservation Commission	\$9,832.75
State Engineer and Surveyor.....	1,499.33
United States Geological Survey.....	2,500.00
Power Companies.....	637.09

\$14,469.17

* In addition to this amount the Federal Government furnishes offices in the Post Office building at Albany and free transportation for all correspondence.

With these funds the following stations were maintained for the periods shown by the tables under each station description:

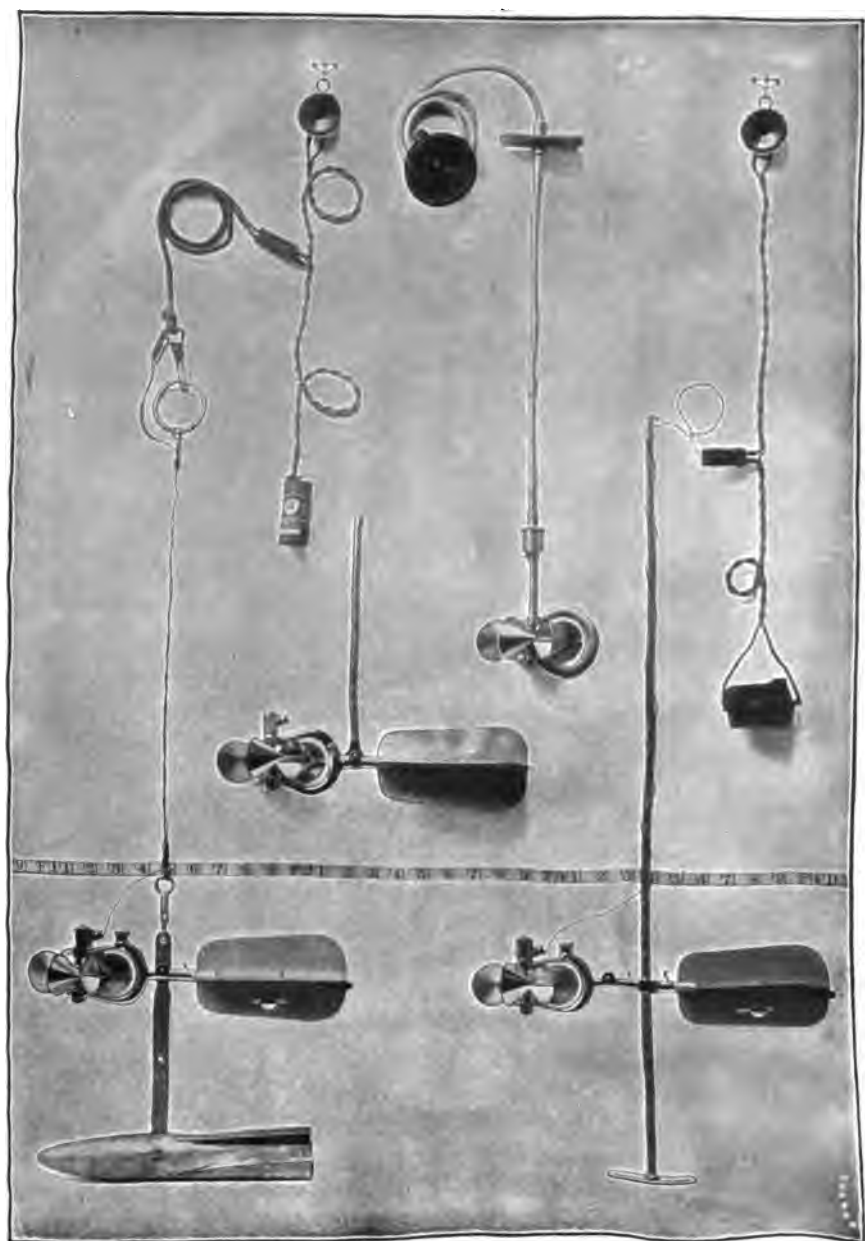
Hudson river near Indian Lake.*	Canaseraga creek near Groveland Station.
Hudson river at North Creek.	Canaseraga creek at Shakers Crossing.*
Hudson river at Thurman.	Keshequa creek near Sonyea.
Hudson river at Spier Falls.*	Owasco outlet near Auburn.*
Hudson river at Mechanicville.	West branch of Onondaga creek at South Onondaga.
Cedar river near Indian Lake.	Black river near Boonville.
Indian Lake reservoir.	Black River canal, flowing south, near Boonville.*
Indian river near Indian Lake.*	Forestport feeder near Boonville.*
Schroon river at Riverbank.	Black river at Black River.
Sacandaga river near Hope.	Moose river at Moose River.
Sacandaga river near Hadley.*	Middle branch of Moose river at Old Forge.
West branch of Sacandaga river at Blackbridge, near Wells.	Beaver river near Beaver River.
Hoosic river near Eagle Bridge.	Oswegatchie river near Heuvelton.*
Mohawk river at Vischer Ferry dam.*	Oswegatchie river near Ogdensburg.
Alplaus kill near Charlton.*	East branch of Oswegatchie river at Newton Falls.
East branch of Delaware river at Fish Eddy.	West branch of Oswegatchie river at Harrisville.
Delaware river at Port Jervis.	Raquette river at Piercefield.*
Beaver kill at Cooks Falls.	Raquette river at Massena Springs.
West branch of Delaware river at Hale Eddy.	St. Regis river at Brasher Center.
Susquehanna river at Conklin.*	Deer river at Brasher Iron Works.
Chenango river at Chenango Forks.*	Richelieu river at Fort Montgomery.
Chemung river at Chemung.	Saranac river near Plattsburg.
Allegheny river at Red House.	Ausable river at Ausable Forks.
Cattaraugus creek at Versailles.	West branch of Ausable river near Newman.
Little Tonawanda creek at Linden.	Lake George.
Genesee river at Scio.	
Genesee river at St. Helena.*	
Genesee river at Jones Bridge.*	
Genesee river at Rochester.*	
Canaseraga creek near Dansville.	

* Station equipped with water-stage register.

EXPLANATION OF DATA

The stations discussed are considered in order downstream. Records for all stations on the main river from its source to its mouth are presented first and records for its tributaries in regular order, from source to mouth, follow, all records for each tributary drainage basin being given before those of the next basin below.

For each regular current-meter gaging station the following data, so far as available, are given: Description of station, list of discharge measurements, table of daily discharge, table of monthly and yearly discharge and run-off. For stations located on streams tributary to the Barge canal a table of daily gage heights is also given.



Small Price current-meters

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In addition to statements regarding the location and installation of current-meter stations, the descriptions give information in regard to any conditions which may effect the constancy of the relation of gage height to discharge, covering such factors as ice, logging, shifting channels, and backwater; also information regarding diversions which decrease the total flow at the measuring section. Statements are also made regarding the accuracy and reliability of the data.

The discharge-measurement table gives the results of the discharge measurements made during the year, including the date, name of hydrographer, gage height in feet, and discharge in second-feet.

Where published, the table of daily gage heights records the fluctuations of the stage of the river as found from the mean of the gage readings taken each day. At stations not equipped with recording instruments, the gage is usually read by the observer in the morning and in the evening. The gage height given in the table represents the elevation of the surface of the water above the zero of the gage. All gage heights affected by the presence of ice in the streams, or by backwater from obstructions, are published as recorded, with suitable foot-notes. The rating table is not applicable for such periods unless the proper corrections to the gage heights are known and applied. Attention is called to the fact that the zero of the gage is placed at an arbitrary datum and has no relation to zero flow or the bottom of the river. In general, the zero is located somewhat below the lowest known flow, so that the readings shall not have a negative value.

The discharge measurements and gage heights are the base data from which rating tables, daily-discharge tables and monthly-discharge tables are computed.

The rating table gives, either directly or by interpolation, the discharge in second-feet corresponding to every stage of the river recorded during the period for which it is applicable. Rating tables are not published in this report, but if desired for the purpose of verifying the published results they can be made from the daily gage heights and daily discharge as follows:

First, plot the discharge measurements for the current and earlier years on cross-section paper with gage heights in feet as

ordinates and discharge in second-feet as abscissas. Then, tabulate a number of gage heights taken from the daily gage-height table* for the complete range of stage given and the corresponding discharge for the days selected from the daily-discharge table, and plot the values on cross-section paper. The last points plotted will define the rating curve used and will lie among the plotted discharge measurements. After drawing the rating curve, a table can be developed by scaling off the discharge in second-feet for each tenth foot of gage height. These values should be so adjusted that the first differences shall always be increasing or constant, except for known conditions of backwater.

The table of daily discharge gives the discharge in second-feet corresponding to the observed gage heights as determined from the rating tables.

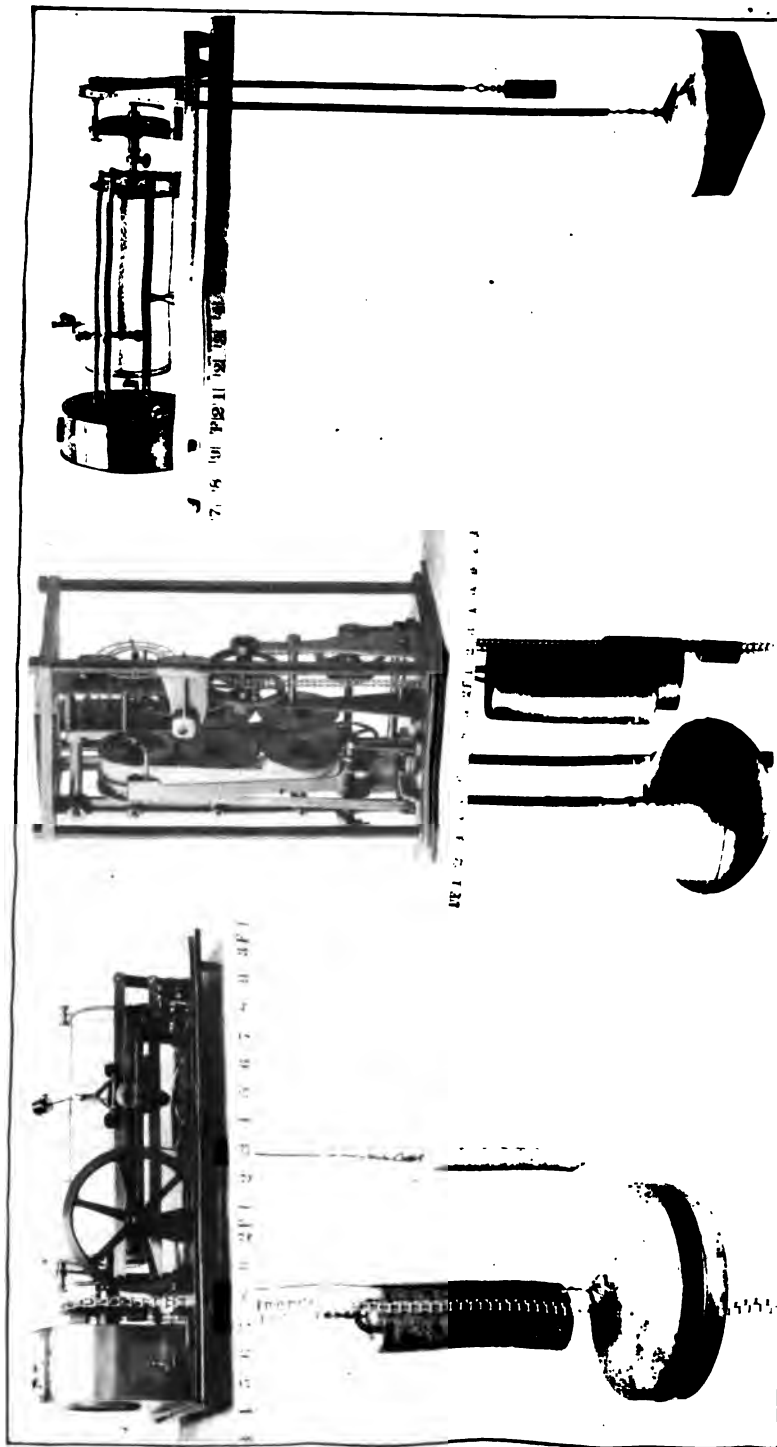
In the table of monthly discharge the column headed "Maximum" gives the mean flow, as determined from the rating table, for the day when the mean gage height was highest. As the gage height is the assumed mean for the day, it does not indicate correctly the stage when the water-surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Likewise, in the column headed "Minimum," the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet for each second during the month. On this the computations for the remaining columns are based.

The base data presented in this report, unless otherwise stated in description of station, have been collected by the methods commonly used at current-meter gaging stations and described in standard text books.

ACCURACY AND RELIABILITY OF DATA

The accuracy of stream-flow data depends primarily on the natural conditions at the gaging station and on the methods and care with which the data are collected. Errors of the first group depend upon the degree of permanency of channel and of permanency of the relation between discharge and stage. Errors of the

* Where gage heights are not published, copies can be had upon application to the State Engineer or United States Geological Survey, Albany, N. Y.



4

second class are due, first, to errors in observation of stage; second, to errors in measurements of flow; and third, to errors due to misinterpretation of stage and flow data.

Even though the monthly means for any station may represent with a high degree of accuracy the quantity of water flowing past the gage, the figures showing discharge per square mile and depth of run-off in inches may be subject to errors which result from including in the measured drainage area some noncontributing districts or omitting estimates of water diverted for municipal supplies or other purposes, and they should, therefore be considered as only approximate, particularly for winter periods or low water. For these errors it is as a rule not feasible to make adequate correction.

The table of monthly discharge is so arranged as to give a general idea of the flow at the station, but should be used only for preliminary estimates. The computations of daily discharge allow more detailed studies of the variation in flow by which the period of deficiency may be determined.

It should be borne in mind that the observations in each succeeding year may be expected to throw new light on data already collected and published, and the engineer who makes use of the figures presented in this report should familiarize himself with the conditions under which they were collected before attempting to draw conclusions for periods other than those covered by the data.

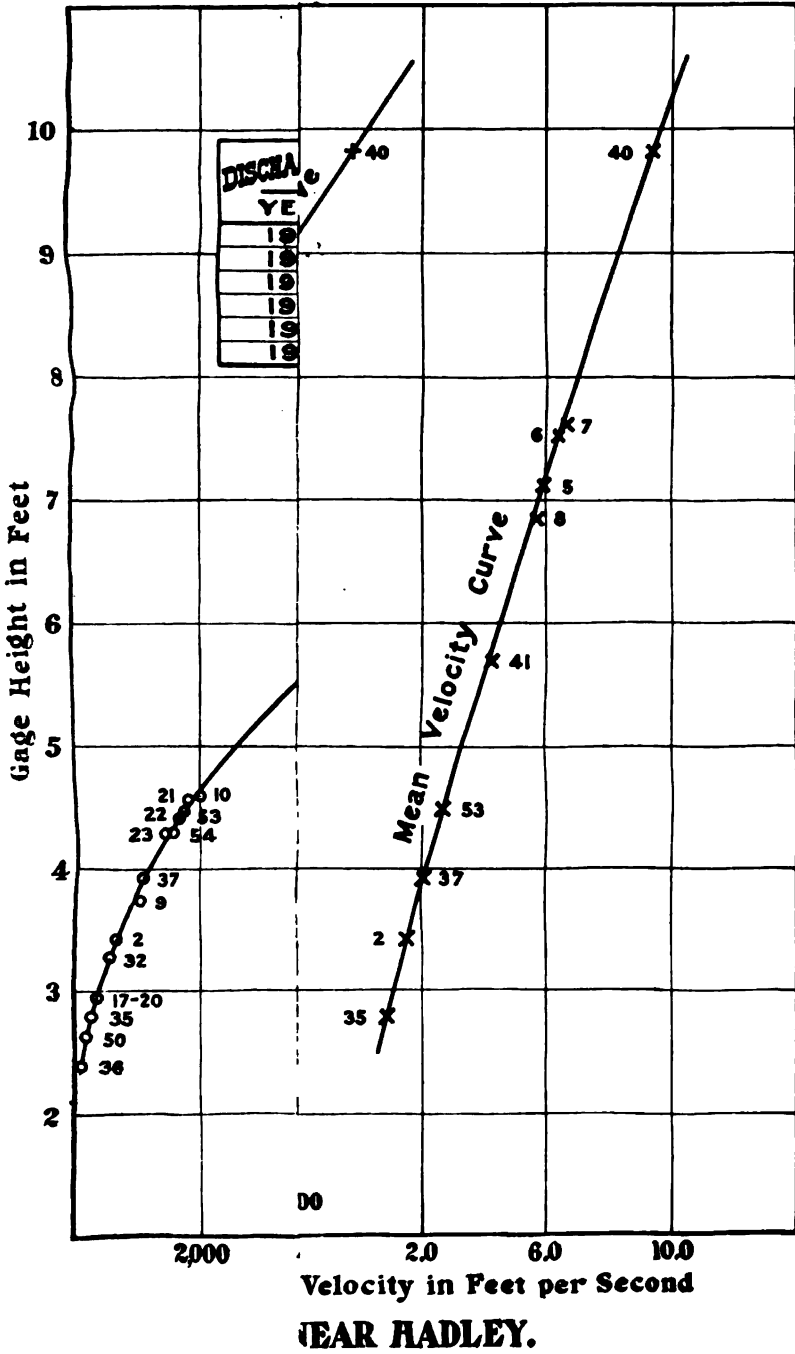
HYDRAULIC DATA

DEFINITION OF TERMS

Barge canal datum is sea-level (mean tide) at Governor's Island, which has been taken as 14.73 feet below the "Grist-mill" bench-mark in Greenbush (now Rensselaer), N. Y. This bench-mark was established by the United States Coast and Geodetic Survey in 1857 and is described as a cross cut in the face of the cellar wall of an old grist-mill at Greenbush, opposite Albany. This structure has been torn down within the last few years and a new building erected, in which the old stone has been reset at an elevation not yet determined by this Department. The elevations given herein, unless otherwise noted, are feet above Barge canal datum, indicated as (B. C. datum), which is the datum used in the construction of the Barge canal by the State of New York.

The United States Engineer Department uses in its work on the Hudson river and Lake Champlain two datum planes. All elevations south, or downstream from and exclusive of the new Federal dam at Troy (1,400 feet north of the old State dam) are referred to an assumed plane of **lowest low water** in the Hudson river at this locality, indicated as (L. L. W.), which is 2.0 feet below the mean sea-level at Sandy Hook, N. J., or 15.863 feet below the elevation of "Greenbush" bench-mark as published in the Annual Report of the United States Coast and Geodetic Survey for 1903, Appendix No. 3. This plane of lowest low water (L. L. W.) is 1.13 feet below Barge canal datum. To reduce lowest low water (L. L. W.) elevations to Barge canal datum (B. C. datum), subtract 1.13 feet.

All elevations used by the United States Engineer Department in connection with the new Federal dam at Troy and north thereof are referred to mean sea-level at Sandy Hook, N. J., indicated as (M. S. L.). Mean sea-level (M. S. L.) at Albany is 0.87 foot above Barge canal datum (B. C. datum), but on Lake Champlain



mean sea-level (M. S. L.) is only 0.81 foot above Barge canal datum (B. C. datum).

Elevations (M. S. L.) at Albany + 0.87 foot = Elevations (B. C. datum).

Elevations (M. S. L.) on Lake Champlain + 0.81 foot = Elevations (B. C. datum).

The volume of water flowing in a stream — the “run-off” or “discharge” — is expressed in various terms, each of which has become associated more or less definitely with a certain class of work. These terms may be divided into two groups — (1) those which represent a rate of flow, as “second-feet,” “gallons per minute,” “gallons per 24 hours,” “miner’s inches” and “run-off in second-feet per square mile,” and (2) those which represent the actual quantity of water, as “run-off in depth in inches,” “million gallons,” “cubic feet,” and “acre-feet.” The units used in this report are “second-feet,” “second-feet per square mile,” “run-off depth in inches” and “million gallons.” They may be defined as follows:

“**Second-foot**” is an abbreviation for cubic foot per second and represents the rate of discharge of water flowing in a channel one square foot in cross-section at a rate of one foot per second. It is generally adopted as the fundamental unit in the measurement of flowing water and is the “natural” unit, as the foot and second are the units used in making the physical determinations. Other units may be computed from this by the use of factors given in the table of equivalents.

“**Second-feet per square mile**” is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

“**Run-off depth in inches**” is the depth to which the drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed over the surface. It is used for comparing run-off with rainfall, which is usually expressed as depth in inches.

CONVENIENT EQUIVALENTS

The following is a list of convenient equivalents for use in hydraulic computations:

Table for converting discharge in second-feet per square mile into run-off in depth in inches over the area

Sec.-ft. PER Sq. Mi.	DEPTH IN INCHES FOR PERIODS INDICATED							Sec.-ft. per sq. mi.
	1 day	28 days	29 days	30 days	31 days	365 days	366 days	
1.....	0.037190	1.041322	1.078512	1.115702	1.152893	13.574380	13.611570	1
2.....	.074380	2.082645	2.157025	2.231406	2.305786	27.148760	27.223140	2
3.....	.111570	3.123967	3.235537	3.347107	3.458678	40.723140	40.834711	3
4.....	.148760	4.165289	4.314050	4.462810	4.611570	54.297521	54.446281	4
5.....	.185950	5.206612	5.392562	5.578512	5.764463	67.871901	68.057851	5
6.....	.223140	6.247934	6.471074	6.694215	6.917356	81.446281	81.669421	6
7.....	.260331	7.289256	7.549587	7.809917	8.070248	95.020661	95.280992	7
8.....	.297521	8.330579	8.628099	8.925620	9.223140	108.595041	108.892562	8
9.....	.334711	9.371901	9.706612	10.041322	10.376033	122.169421	122.504132	9

NOTE.—For partial month, multiply the values for one day by the number of days.

1 second-foot equals 7.49 United States gallons per second; equals 448.8 gallons per minute; equals 646,317 gallons for one day.

1 second-foot for one year covers 1 square mile 1.131 feet, or 13.572 inches, deep.

1 second-foot for one year equals 31,536,000 cubic feet.

1 second-foot for one day equals 86,400 cubic feet.

1,000,000,000 (1 United States billion) cubic feet equals 11,570 second-feet for 1 day.

1,000,000,000 cubic feet equals 414 second-feet for one 28-day month.

1,000,000,000 cubic feet equals 399 second-feet for one 29-day month.

1,000,000,000 cubic feet equals 386 second-feet for one 30-day month.

1,000,000,000 cubic feet equals 373 second-feet for one 31-day month.

1,000,000 United States gallons per day equals 1.55 second-feet.

100 United States gallons per minute equals 0.223 second-foot.

1 inch deep on 1 square mile equals 2,523,200 cubic feet.

1 inch deep on 1 square mile equals 0.0737 second-foot per year.



HUDSON RIVER AT SPIER FALLS
Cable support and gaging car

- 1 foot equals 0.3048 meter.
- 1 mile equals 1.60935 kilometers.
- 1 mile equals 5,280 feet.
- 1 acre equals 0.4047 hectare.
- 1 acre equals 43,560 square feet.
- 1 acre equals 209 feet square, nearly.
- 1 square mile equals 2.59 square kilometers.
- 1 cubic foot equals 0.0283 cubic meter.
- 1 cubic foot of water weighs 62.5 pounds.
- 1 cubic meter per minute equals 0.5886 second-foot.
- 1 horse-power equals 550 foot-pounds per second.
- 1 horse-power equals 76.0 kilogram-meters per second.
- 1 horse-power equals 746 watts.
- 1 horse-power equals 1 second-foot falling 8.80 feet.
- $1\frac{1}{3}$ horse-power equals about 1 kilowatt.

To calculate water-power quickly: $\frac{\text{Sec. ft.} \times \text{fall in feet}}{11} = \text{net horse-power on water-wheel realizing 80 per cent of theoretical power.}$

ST. LAWRENCE RIVER DRAINAGE

GENERAL FEATURES

The surface waters of an area of 565,000 square miles in extent pass to the ocean by way of St. Lawrence river. In form this area is an irregular parallelogram extending southwestward for about 900 miles with a fairly uniform breadth of 250 miles. The Great Lakes, into which the river expands, have a water-surface of 95,600 square miles, leaving for the land surface drained by the river about 470,000 square miles. More than eight-tenths of this area belongs to Canada. The remainder constitutes a part of the United States. With the exception of about 50,000 square miles (including the whole of the Gaspé Peninsula) in the eastern part of the Province, the Canadian portion lies wholly on the north side of the river. The only part of the United States lying north of the river is at the west end of Lake Superior.

At its mouth the river and its tributaries are drowned, so that the salt water of the ocean enters to form the broad bay of St. Lawrence, with its irregular margin, and even beyond the bay there is indication of a river valley carved in the continental shelf completely covered by the ocean waters. Upstream from the bay of St. Lawrence the water area narrows and the water freshens, though the tide rises nearly as far as Montreal, where the St. Lawrence is a very broad river with gentle current. Just above Montreal the river becomes a series of violent rapids, and from this point upstream it consists of stretches of quiet water separated by rapids. At the outlet of Lake Ontario the river passes through a maze of islands, beyond which is Lake Ontario — the lowest of the five Great Lakes.

The lakes are connected by broad rivers and straits, which in places are navigable, are elsewhere interrupted by rapids and in one place are broken by one of the great falls of the world — Niagara. To the entire area above the mouth of Lake Ontario no large river is tributary. In places the divide runs close to the lakes and is nowhere far from them.

PLATE VII.



CHENANGO RIVER, CHENANGO FORKS
Shelter for automatic water-stage register

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In the northwestern part of the state of New York, between Niagara and St. Lawrence rivers, is an area aggregating 12,400 square miles drained by streams which flow into Lake Ontario. The divide which controls this drainage is very irregular. Extending to the south and southeast from Fort Niagara, it passes around the headwaters of the Genesee a short distance into Pennsylvania; thence reëntering New York it turns southward and eastward taking in the finger lake region, turns to the north, encircles the sources of Black river, turns again to the west and descends to the lake. The country thus included is level or gently undulating in the counties bordering the lake, but farther south it becomes more rolling and a series of ridges, gradually increasing in height, stretch down between Cayuga and Seneca and their companion lakes, finally becoming merged with the elevated, broken country forming the principal divide whose abrupt slopes reach altitudes of 2,000 to 2,500 feet above the headwaters of the Genesee. The easterly or Black river lobe of the drainage basin receives the run-off from the southwestern slope of the Adirondack mountains — largely a rugged and forest-covered area receiving heavy precipitation, especially in the winter. The principal streams of the area are Genesee, Oswego (formed by the union of Seneca and Oneida rivers, which drain the chain of lakes in central New York), Salmon and Black rivers. A small area in the western part of the state is drained by Lake Erie.

St. Lawrence river receives the flow of a number of New York streams having their sources in a northerly slope of the Adirondacks and fed by the numerous lakes with which the region is dotted. Some of these rivers, as the Grass, Raquette and St. Regis, lie entirely within the United States; others, notably Salmon, Trout, Chateaugay and English rivers, cross the international boundary and flow northward into the St. Lawrence in Canada, as does also Richelieu river, the outlet of Lake Champlain. The following table gives a list of the principal tributaries of the St. Lawrence in the United States, with the areas drained by them, determined chiefly from Bien's Atlas of the state of New York.

Drainage areas of ST. LAWRENCE RIVER TRIBUTARIES in the United States

	Square miles		Square miles
Oswegatchie river.....	1,609	Salmon river a.....	273
Grass river.....	687	Thout river b.....	129
Raquette river.....	1,219	Chateaugay river b.....	199
St. Regis river.....	910	English river b.....	53
Little Salmon river c.....	103	Lake Champlain c.....	7,867

a Above junction near international boundary. b At New York state line. c Above outlet.

The St. Lawrence drains, through Lake Champlain, an area of nearly 4,560 square miles in the state of Vermont. This drainage is practically all from Missisquoi, Lamoille and Winooski rivers and Otto creek. Clyde, Barton and Black rivers, in northern Vermont, are tributary to St. Lawrence river through Lake Memphremagog and St. Francis river.

NIAGARA RIVER DRAINAGE

GENERAL FEATURES

Niagara river connects Lakes Erie and Ontario. It receives the drainage from Tonawanda creek and adjacent smaller areas in New York.

NIAGARA RIVER

NIAGARA RIVER AT TONAWANDA CREEK, TONAWANDA

This station, established by this Department, January 23, 1905, is located on Tonawanda creek about 400 feet above its junction with Niagara river and 1,100 feet below the State dam, at the New York Central railroad drawbridge. A staff gage was used until April 8, 1908, when a Friez automatic gage, making a seven-day graph, was installed just below the bridge and has been used since, being checked by weekly readings on the staff gage. The automatic gage has a range of eight feet between elevations 565.0 and 573.0.

On December 1, 1916, a standard Type A gage, No. 221, in two sections, having a range of eight feet, was erected on the back of the easterly abutment of the drawbridge, to replace the old gage, the lower section reading from 563.0 to 567.0 and the upper section from 567.0 to 571.0. A standard bench-mark plug was set in the rear face of the abutment close to the gage at elevation 571.0 (B. C. datum). Mean daily water-surface has been taken from the graph to the nearest half-tenth of a foot.



GENESEE RIVER AT ST. HELENA
Gurley automatic water-stage register and concrete shelter

Daily elevation of water-surface (B. C. datum) of NIAGARA RIVER AT TONAWANDA CREEK, TONAWANDA, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	567.2	566.9	567.2	566.5	567.1	566.7	567.2	566.6	566.25	566.6	567.5	567.6
2.....	567.5	567.0	567.1	566.5	566.9	566.55	566.7	566.6	566.2	566.9	567.6	567.6
3.....	567.4	567.25	567.1	566.55	566.7	566.15	566.7	567.5	566.0	566.8	566.8	568.0
4.....	567.35	567.15	567.2	566.55	566.4	566.25	566.4	566.8	565.8	566.6	565.9	567.5
5.....	567.3	567.2	567.2	566.6	566.8	566.85	566.5	566.9	565.85	566.4	565.6	567.4
6.....	567.3	567.15	567.1	566.05	566.2	567.4	566.8	566.7	566.4	566.9	566.4	567.2
7.....	567.35	567.2	567.2	566.55	566.35	566.15	567.0	566.9	565.9	567.3	566.6	567.6
8.....	567.3	567.4	567.2	566.65	566.5	566.2	567.5	566.8	566.5	566.9	566.8	567.7
9.....	566.9	567.2	567.0	566.55	566.2	567.6	566.9	566.7	566.3	567.1	567.0	567.6
10.....	567.1	567.15	566.85	566.65	566.9	566.9	566.2	566.65	565.95	567.2	567.0	567.7
11.....	567.2	567.3	567.0	566.8	566.7	566.0	566.2	567.1	566.1	566.9	567.0	567.8
12.....	567.3	567.4	567.05	566.65	565.8	566.4	566.3	567.1	566.2	567.0	566.5	567.7
13.....	567.3	567.3	567.1	567.25	566.0	566.35	566.4	567.15	565.9	567.0	567.2	567.7
14.....	567.1	567.4	566.9	566.7	566.2	566.95	567.3	567.1	566.4	566.9	567.1	567.9
15.....	567.2	567.2	567.2	567.1	566.7	a	567.3	566.8	566.75	567.0	567.2	567.7
16.....	567.4	567.2	567.2	566.9	566.7	566.6	567.4	566.7	566.15	567.0	567.4	567.8
17.....	567.3	567.2	567.2	567.4	566.6	566.3	568.2	566.9	567.1	566.9	567.4	567.8
18.....	567.25	567.25	567.0	566.35	566.7	566.25	568.2	566.5	566.8	566.8	567.2	567.7
19.....	567.3	567.2	567.0	566.6	567.05	566.3	567.4	566.3	566.5	566.8	567.1	567.7
20.....	567.35	567.25	567.1	567.2	566.25	566.15	569.9	566.7	566.5	566.8	567.2	567.8
21.....	567.45	567.25	567.0	568.2	565.9	566.1	566.4	566.5	566.2	567.1	566.9	567.7
22.....	567.4	567.25	566.9	566.85	566.25	566.0	567.5	566.5	566.2	567.1	566.9	567.8
23.....	567.4	567.25	567.0	567.5	566.5	566.6	566.7	566.3	566.4	566.9	568.3	567.6
24.....	567.4	567.3	566.8	566.9	568.2	566.1	566.7	566.3	566.9	566.8	568.2	567.9
25.....	567.3	567.2	566.7	566.8	567.35	566.7	566.8	566.2	566.6	566.4	567.6	567.8
26.....	567.4	567.25	566.65	a	566.6	565.7	566.9	566.2	566.5	566.9	567.3	567.9
27.....	567.3	567.1	566.75	a	566.05	566.45	567.1	566.3	567.1	567.1	567.2	568.0
28.....	567.15	567.1	566.75	566.5	566.45	566.75	567.55	566.2	567.3	566.8	566.9	567.8
29.....	567.25	567.1	566.95	566.5	568.3	566.85	567.0	.....	567.3	566.7	567.3	568.3
30.....	567.35	567.2	566.6	566.6	566.58	567.0	566.65	.....	565.9	566.8	567.4	568.1
31.....	567.3	567.0	.....	566.5	.....	567.06	566.0	.....	566.6	.....	567.4	.....

a No record; clock stopped.

EMENDATION.—Elevation of water-surface for July 4, 1915, should read 566.4 instead of 564.4, as given in Report of State Engineer and Surveyor for 1915, Vol. II, page 26.

CATTARAUGUS CREEK

DESCRIPTION

Cattaraugus creek rises in the southwestern part of Wyoming county and flows in a westerly direction, entering Lake Erie about 25 miles southwest of Buffalo, on the boundary line between Erie and Chautauqua counties. The stream is about 55 miles long and drains an area of approximately 500 square miles above the mouth. A large portion of its course forms the boundary between Erie and Chautauqua counties. Its headwaters rise at an elevation of between 1,900 and 2,000 feet. The drainage basin is hilly, fairly well timbered and rather narrow. There are few tributary streams, those of most importance entering the river from the south.

South branch of Cattaraugus creek, which is the largest tributary, enters at a point about two miles above Gowanda. There is a dam at Gowanda, which is used for developing electric power and also for running a local grist-mill.

CATTARAUGUS CREEK AT VERSAILLES

Location.—At the three-span highway bridge in the village of Versailles, Cattaraugus county, $2\frac{1}{4}$ miles above the mouth of Clear creek, about 6 miles below Gowanda and about 8 miles above the mouth of the stream.

Drainage area.—467 square miles. (Measured on post-route map.)

Records available.—September 23, 1910, to June 30, 1917.

Gage.—Chain, on upstream side of right span of bridge. Gage read by James Palmer.

Discharge measurements.—Made from the downstream side of bridge or by wading.

Channel and control.—Rock and gravel; shifting.

Extremes of discharge.—Current year: Maximum stage recorded, 8.2 feet at 9 A. M., March 17; discharge, approximately 8,460 second-feet. Minimum stage recorded, 4.45 feet several times during September; discharge, 64 second-feet.

1910-1917: Maximum stage recorded, 11.6 feet at 5:40 P. M., March 25, 1913; discharge, approximately 30,000 second-feet. Minimum stage recorded, 4.65 feet, August 21 and September 6 and 7, 1913; discharge, 55 second-feet.

Ice.—Stage-discharge relation seriously affected by ice.

Accuracy.—Stage-discharge relation not permanent. Affected by ice during large portion of the period from December to March, inclusive. Gage read to half-tenths twice daily. Daily discharge ascertained by indirect method of applying mean daily effective gage heights to rating table. Effective gage heights determined from discharge measurements. Results fair.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.



OWASCO OUTLET NEAR AUBURN
Concrete shelter

Discharge measurements of CATTARAUGUS CREEK AT VERSAILLES, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 23 <i>a</i>	E. D. Burchard.....	4.86	231
July 23 <i>a</i>	E. D. Burchard.....	4.86	222
Sept. 9 <i>a</i>	E. D. Burchard.....	4.84	204
Sept. 9 <i>a</i>	E. D. Burchard.....	4.82	201
Jan. 18.....	C. S. DeGolyer.....	5.00	247
Feb. 8 <i>b</i>	E. D. Burchard.....	8.00	450
Mar. 14.....	E. D. Burchard.....	6.52	2,750
Mar. 14.....	E. D. Burchard.....	6.61	3,080
May 29.....	E. D. Burchard.....	6.26	2,240
May 29.....	E. D. Burchard.....	6.22	2,190
June 27.....	E. D. Burchard.....	6.06	1,870

a Measurement made by wading.*b* Measurement made through complete ice cover.

Daily discharge, in second-feet, of CATTARAUGUS CREEK AT VERSAILLES, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	310	143	81	98	124	570	340	1,100	1,190	4,030	404	1,440
2.....	474	143	81	82	178	386	400	900	920	3,130	493	1,190
3.....	985	135	81	98	154	310	400	750	795	2,120	474	1,810
4.....	522	124	72	90	154	264	460	650	703	1,350	456	1,050
5.....	456	124	75	75	154	261	1,800	550	703	1,190	772	920
6.....	386	124	90	82	143	261	2,800	500	3,000	1,350	1,190	1,710
7.....	310	113	75	70	143	231	1,400	480	1,520	1,810	920	5,380
8.....	297	113	105	75	98	178	600	440	1,050	1,520	920	2,120
9.....	245	124	200	98	114	178	700	440	858	1,050	680	1,440
10.....	245	113	152	98	143	178	550	440	920	920	551	2,350
11.....	245	113	113	64	154	189	320	420	4,680	920	592	1,910
12.....	245	135	105	90	189	200	260	380	6,900	1,350	493	1,120
13.....	234	234	81	124	178	190	340	320	1,910	1,050	493	795
14.....	1,320	234	81	348	203	180	400	260	2,350	795	456	680
15.....	430	166	105	203	231	180	380	200	1,810	703	386	592
16.....	297	113	99	154	203	140	300	150	1,120	703	371	570
17.....	245	105	75	134	203	130	800	110	1,910	658	386	551
18.....	245	124	81	105	203	120	240	130	1,620	570	371	474
19.....	217	124	81	124	203	110	240	280	858	592	386	493
20.....	200	113	75	189	245	100	240	240	985	570	920	456
21.....	189	105	81	217	278	95	240	190	1,620	592	703	404
22.....	189	113	81	203	217	90	420	150	1,620	493	772	371
23.....	200	113	90	154	231	90	900	140	2,020	493	920	371
24.....	200	81	90	124	1,520	95	900	300	5,750	493	1,050	2,020
25.....	189	81	90	114	709	160	800	1,200	2,020	474	1,620	920
26.....	180	99	81	203	386	280	650	5,000	1,910	404	920	570
27.....	180	124	75	154	386	700	550	4,600	2,020	404	920	658
28.....	189	99	61	154	430	1,270	480	2,000	2,120	404	1,520	592
29.....	189	81	61	143	920	703	600	.....	2,240	386	2,350	570
30.....	152	81	81	154	1,050	522	1,500	.....	1,520	386	1,520	625
31.....	143	81	.....	124	.....	371	1,400	.....	1,520	.....	1,050	.....
Mean...	320	122	90	134	319	282	675	796	1,940	1,030	808	1,140

NOTE.— Discharge, December 13 to 27 and January 15 to February 27, both inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage-height graph and comparison with similar studies for near-by stations.

Monthly discharge of CATTARAUGUS CREEK AT VERSAILLES, for the year ended
JUNE 30, 1917

[Drainage area, 487 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,320	143	320	0.685	0.79
August.....	234	81	122	0.261	0.30
September.....	200	61	90	0.193	0.22
October.....	348	64	134	0.287	0.33
November.....	1,520	98	319	0.683	0.76
December.....	1,270	90	282	0.604	0.70
January.....	2,800	240	675	1.45	1.67
February.....	5,000	110	796	1.70	1.77
March.....	6,900	703	1,940	4.16	4.80
April.....	4,030	386	1,030	2.21	2.47
May.....	2,350	371	898	1.73	1.99
June.....	5,380	371	1,140	2.44	2.72
The year.....	6,900	61	637	1.36	18.52

TONAWANDA CREEK

DESCRIPTION

Tonawanda creek rises in Wyoming county and flows northward into Genesee county. At Batavia it turns abruptly to the west and continues in that direction until it reaches the Niagara river at Tonawanda. After passing out of Genesee county it forms the boundary between Niagara county and Erie county.

Tonawanda creek rises in a rather hilly country and, in the upper part of its basin, flows through a rather narrow valley. Its main tributary is Little Tonawanda creek, which flows into the stream from the right about 3 miles south of Batavia.

Between Pendleton and Tonawanda the creek and the Erie canal are coincident, the creek leaving the canal over the State dam at Tonawanda. Water for canal purposes is passed eastward in the canal from Tonawanda creek and Lake Erie.

ERIE CANAL AT CHANGE BRIDGE, PENDLETON

This station is located at change bridge over the Erie canal at its junction with Tonawanda creek about $\frac{1}{2}$ mile southwest of Pendleton. The gage is a staff secured to a pile under the old tow-path bridge. It is read once daily — at 5 p. m.



STANDARD VERTICAL STAFF GAGE, STATE ENGINEER'S DEPARTMENT
Method of erection where gage for low water cannot be extended to give
high-water readings.

Daily elevation of water-surface (B. C. datum) of ERIE CANAL AT CHANGE BRIDGE, PENDLETON, for the year ended June 30, 1917. Homer Snell, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	570.6	570.5	570.7	570.5	570.5	570.4	570.05	569.4	571.55	570.9	570.2	571.65
2.....	570.3	570.3	570.7	570.4	570.5	571.35	569.9	569.3	571.4	572.5	570.0	571.75
3.....	570.9	570.5	570.6	570.4	570.6	571.45	569.7	569.25	571.1	571.9	569.2	571.55
4.....	570.8	570.7	570.7	570.6	570.1	570.7	569.65	569.2	570.8	571.2	569.2	571.3
5.....	571.2	570.5	570.5	570.7	570.2	571.0	570.15	569.1	570.5	570.6	569.1	571.2
6.....	571.2	570.8	570.6	570.5	570.2	570.3	570.7	569.1	570.0	572.4	568.6	571.1
7.....	570.8	570.6	570.6	570.5	570.1	570.2	571.5	569.0	572.0	572.9	568.6	571.7
8.....	570.5	570.7	570.7	570.5	570.2	570.5	571.3	569.0	570.2	571.4	568.9	572.0
9.....	570.6	570.8	570.7	570.5	570.4	571.1	570.9	569.0	570.1	571.1	569.2	572.2
10.....	570.8	570.5	570.6	570.5	570.5	571.1	570.5	569.0	570.0	570.6	569.7	573.5
11.....	570.5	570.6	570.4	570.4	570.45	570.9	570.3	569.0	571.25	570.2	570.5	572.6
12.....	570.4	570.6	570.7	570.4	570.0	570.9	570.2	569.0	572.4	570.0	571.0	571.5
13.....	570.4	570.8	570.6	570.7	570.0	571.0	570.2	569.0	572.2	570.0	571.3	571.3
14.....	570.3	570.7	570.6	570.5	569.9	570.9	570.1	569.0	573.4	570.05	571.2	571.3
15.....	570.8	570.6	570.6	570.9	570.2	570.4	569.3	569.0	573.5	570.15	570.9	571.1
16.....	571.1	570.6	570.5	570.8	570.4	570.7	569.25	569.0	572.3	570.0	571.2	571.1
17.....	571.0	570.5	570.5	570.4	570.5	570.9	569.25	569.0	572.3	569.95	571.2	571.1
18.....	570.7	570.5	570.6	570.5	570.5	571.0	569.25	569.05	571.7	569.9	571.25	571.1
19.....	570.2	570.6	570.6	570.5	570.5	570.8	569.2	569.1	571.0	569.9	571.2	571.2
20.....	570.3	570.6	570.4	570.6	570.6	570.2	569.4	569.05	570.95	570.0	571.5	571.5
21.....	570.0	570.5	570.5	571.0	570.3	570.0	569.25	569.0	570.75	570.2	571.35	571.4
22.....	570.1	570.5	570.4	571.0	570.2	570.0	569.2	569.1	570.9	570.05	571.45	571.1
23.....	570.3	570.6	570.5	570.6	570.1	569.9	569.1	569.45	571.5	569.93	571.7	571.1
24.....	570.8	570.6	570.6	570.8	570.6	569.8	569.1	569.5	572.8	569.95	571.75	571.2
25.....	570.8	570.7	570.4	570.8	570.6	569.6	569.2	569.45	572.0	569.9	571.65	571.1
26.....	570.7	570.8	570.5	570.6	570.65	569.5	569.2	570.0	571.6	570.0	571.6	571.1
27.....	570.7	570.7	570.5	570.7	570.8	569.9	569.1	570.75	571.3	570.0	571.6	571.7
28.....	570.7	570.7	570.4	570.7	570.75	570.0	569.1	571.3	571.2	569.95	571.2	572.0
29.....	570.7	570.6	570.6	570.6	570.75	569.7	569.1	.....	571.8	569.9	571.7	572.1
30.....	570.8	570.6	570.6	570.5	570.4	570.0	569.25	.....	571.3	569.8	571.75	571.8
31.....	570.5	570.6	.....	570.5	.....	570.2	569.3	.....	570.8	.....	571.75	.....

ERIE CANAL ABOVE STATE DAM, TONAWANDA

This station is located just above the State dam over which Tonawanda creek leaves the Erie canal at North Tonawanda.

A staff gage secured to docking near the middle pier of the Main-Delaware street bridge, established January 23, 1905, was used until December 18, 1916, when a new standard Type A gage, No. 220, in two sections, having a range of $15\frac{1}{2}$ feet, was established at the mouth of Ellicott creek about 300 feet west of the old gage. The lower section, from elevation 561.0 to 573.0, is secured to the end of the retaining wall along Tonawanda creek near the easterly end of East Niagara street bridge over Ellicott creek and the upper section, from elevation 572.5 to 576.5, is secured to the pier at the easterly end of the same bridge. A standard bench-mark plug was placed in the side of the pier at elevation 576.0 (B. C. datum).

Previous to November 1, this gage was read once daily — at 8:30 A. M. — to tenths. Beginning November 1, this gage has

been read twice daily—at 8:30 A. M. and 4:30 P. M.—from November 1 to December 16 to tenths, since that date to hundredths.

Daily elevation of water-surface (B. C. datum) of ERIE CANAL ABOVE STATE DAM AT TONAWANDA, for the year ended June 30, 1917. C. Kumro, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	570.9	570.8	570.7	*	570.65	571.1	*	569.44	571.08	*	569.62	571.70
2.....	*	570.5	570.7	570.7	570.65	571.4	569.74	569.57	570.92	571.85	569.72	571.55
3.....	571.1	570.6	*	570.8	570.6	*	569.66	569.65	570.82	571.72	569.12	*
4.....	571.3	570.7	570.9	570.8	570.4	570.85	569.68	*	*	571.13	569.50	571.35
5.....	571.5	570.8	570.7	570.7	*	571.05	569.88	569.26	569.86	570.80	567.90	571.35
6.....	571.2	*	570.6	570.8	570.3	570.25	570.57	569.14	569.51	571.77	*	571.40
7.....	570.9	570.7	570.4	570.6	570.3	570.25	*	569.08	569.41	572.28	568.25	571.56
8.....	570.7	570.8	570.5	*	570.35	570.6	571.08	569.22	569.64	*	568.56	571.96
9.....	*	570.8	570.5	570.7	570.45	571.0	570.71	569.05	569.79	570.85	569.05	572.12
10.....	570.9	570.7	*	570.5	570.7	*	570.48	569.09	569.73	570.44	569.65	*
11.....	570.5	570.8	570.6	570.5	570.7	571.05	569.98	*	*	570.16	570.35	572.60
12.....	570.4	570.8	570.6	570.6	*	570.9	569.72	569.06	571.66	569.90	571.00	571.87
13.....	570.4	*	570.7	570.6	570.25	571.0	569.65	568.96	571.85	569.95	*	571.70
14.....	570.4	570.8	570.7	570.7	570.0	570.95	*	569.29	572.08	570.08	571.30	571.42
15.....	570.5	570.8	570.6	*	570.7	570.45	569.38	569.05	572.15	*	571.06	571.18
16.....	*	570.7	570.6	571.0	570.4	570.8	569.22	569.00	571.67	570.00	571.14	571.10
17.....	571.4	570.7	*	570.9	570.55	*	569.18	569.00	571.43	569.82	571.24	*
18.....	571.0	570.7	570.7	570.3	570.1	570.85	569.30	*	*	569.96	571.25	571.10
19.....	570.5	570.8	570.6	570.7	*	570.5	569.18	568.42	570.86	569.89	571.28	571.42
20.....	570.3	*	570.7	570.8	570.85	570.05	569.17	569.06	570.70	569.91	*	571.50
21.....	570.1	570.8	570.6	571.1	570.55	569.70	*	569.18	570.62	569.95	571.46	571.44
22.....	570.1	570.6	570.6	*	570.4	569.7	569.45	569.28	570.65	*	571.60	571.18
23.....	*	570.6	570.6	570.9	570.7	569.95	569.14	569.42	570.96	569.02	571.60	570.95
24.....	570.9	570.7	*	570.8	570.55	*	569.12	569.50	571.80	569.90	571.60	*
25.....	570.9	570.8	570.7	570.5	570.6	*	569.18	*	*	569.92	571.68	570.98
26.....	570.9	570.8	570.6	570.8	*	569.55	569.37	569.82	571.16	569.90	571.59	571.08
27.....	570.9	*	570.5	570.7	570.95	569.8	569.20	570.61	570.89	569.86	*	571.75
28.....	570.9	570.9	570.5	570.6	570.9	569.9	*	570.92	570.88	569.86	571.74	572.30
29.....	570.8	570.8	570.4	*	570.8	569.8	569.16	.....	571.22	*	571.60	572.19
30.....	*	570.7	570.7	570.5	.....	569.75	569.26	.....	571.13	569.72	*	571.90
31.....	570.9	570.7	.....	570.4	.....	*	569.34	.....	570.65	.....	571.88	.....

* Sunday or holiday.

LITTLE TONAWANDA CREEK

LITTLE TONAWANDA CREEK AT LINDEN

Location.—At the stone arch highway bridge in the village of Linden, Genesee county, about 3 miles above the junction with Tonawanda creek.

Drainage area.—22 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—July 8, 1912, to June 30, 1917.

Gage.—Vertical staff, on right upstream abutment of bridge. Lower 2 feet of enameled iron, graduated to hundredths of foot; upper 4 feet of bronze, graduated to half-tenths. Gage read by C. L. Schenck.

Discharge measurements.—High-water measurements made from a cable 1,000 feet above gage; low-water measurements made by wading near gage.

Channel and control.—A standard Francis weir, 2.01 feet long and 8 inches high, has been constructed under the upstream side of the bridge. When the water overtops this weir it flows over a 2-inch plank about 13 feet long, including the 2 feet of weir. During the winter of 1916–7 the crest of the weir was worn down by ice passing over it, making a new rating necessary.

Extremes of discharge.—Current year: Maximum stage determined from water marks on gage, 9.5 feet in the early morning of June 27; discharge, not computed. Minimum stage recorded, 0.20 foot, October 8 and 9; discharge, 0.51 second-foot.

1912–1917: Maximum stage recorded, 14.6 feet during the early morning of April 22, 1916, determined by leveling from a reference point; discharge, approximately 2,400 second-feet. Minimum stage recorded, 0.18 foot, August 20 and 21, September 14 to 16, inclusive, and October 8, 1913; discharge, 0.43 second-foot.

Accuracy.—Stage-discharge relation permanent. Rating curve for weir in good condition, well defined up to 250 second-feet and fairly well between 250 and 750 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good for period when weir was in good condition and fairly good for the remainder of the year.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of **LITTLE TONAWANDA CREEK AT LINDEN**, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
May 28.....	E. D. Burchard.....	a 1.06	27.3
May 28.....	E. D. Burchard.....	a 1.07	28.4
May 28.....	E. D. Burchard.....	a 1.55	66.3
May 28.....	E. D. Burchard.....	a 1.62	73.0
June 28.....	E. D. Burchard.....	b 1.64	56.8
June 28.....	E. D. Burchard.....	b 1.83	57.5
June 28.....	E. D. Burchard.....	c 1.52	54.6
June 28.....	E. D. Burchard.....	c 1.49	53.1

a Crest of weir worn by ice.

b Tree lodged against weir.

c Portion of tree removed.

NOTE.—All measurements made by wading.

Daily discharge, in second-feet, of LITTLE TONAWANDA CREEK AT LINDEN, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	5.1	2.25	0.91	0.69	0.91	3.07	7.2	16	59	314	17	62
2.....	4.9	2.12	1.07	.68	.87	2.72	6.1	10.4	47	166	25	83
3.....	71	2.12	.91	.83	.87	2.38	6.1	6.6	22	96	19	28
4.....	26	2.12	.96	.59	.82	2.51	9.7	6.9	17	57	17	23
5.....	11	1.99	.87	.59	.91	6.1	55	6.4	18	49	40	47
6.....	7.2	1.99	.91	.59	.87	3.21	91	4.9	12	90	55	60
7.....	5.9	1.74	.96	.55	.82	3.00	37	4.6	12	80	36	365
8.....	4.9	1.81	1.29	.51	.82	2.79	22	4.6	18	90	26	214
9.....	4.2	1.74	1.07	.51	.96	2.79	13	4.2	11.1	62	23	80
10.....	3.9	1.74	.96	.59	1.39	2.72	9.7	3.9	10.7	45	30	142
11.....	4.2	1.74	.96	.59	1.81	2.45	8.7	4.1	302	62	17	189
12.....	3.5	1.68	.82	.59	1.51	2.38	8.1	3.6	335	66	23	71
13.....	29	2.65	.77	.77	1.45	2.79	6.1	3.36	136	76	18	44
14.....	55	1.62	.77	.87	1.93	2.25	4.9	3.36	100	47	16	33
15.....	13	1.51	.91	.72	2.12	2.51	6.1	3.36	45	39	14	26
16.....	7.8	1.51	.87	.68	2.12	2.38	5.3	3.28	56	36	11.5	28
17.....	5.6	1.51	.87	.68	1.99	2.51	3.07	3.21	116	32	11.0	23
18.....	3.9	1.45	.87	.63	2.12	2.25	3.6	5.6	71	30	11.0	26
19.....	8.6	1.45	.77	.77	2.45	2.25	4.6	7.2	47	30	10.0	80
20.....	3.36	1.34	.72	1.07	2.72	2.12	5.1	12	76	29	34	33
21.....	3.07	1.28	.68	1.07	2.79	2.18	4.6	20	116	26	21	23
22.....	3.14	1.17	.68	.91	2.25	1.99	5.1	10	126	23	31	19
23.....	2.93	1.12	.68	.87	2.18	1.99	6.1	8.4	183	23	20	16
24.....	2.79	1.17	.77	.77	5.1	2.18	6.4	32	305	22	100	42
25.....	2.72	1.12	.77	.77	3.5	2.58	5.6	30	148	18	80	28
26.....	2.72	1.07	.72	.87	2.86	2.65	4.6	99	166	20	38	121
27.....	3.36	1.23	.77	.77	2.45	3.36	4.2	235	189	17	31	290
28.....	3.07	1.28	.59	.82	2.51	34	3.9	87	100	16	55	53
29.....	2.12	1.12	.68	.77	3.07	20	4.1	.....	160	14	95	61
30.....	2.51	.96	.68	.82	3.6	12	17	.....	71	17	62	34
31.....	2.51	.96	.....	.77	.....	8.4	29	.....	90	.....	35	.....
Mean...	9.8	1.57	0.85	0.73	1.99	4.72	13.0	22.5	102	56.4	32.9	76.5

Monthly discharge of LITTLE TONAWANDA CREEK AT LINDEN, for the year ended June 30, 1917

[Drainage area, 22.0 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	71	2.12	9.8	0.445	0.51
August.....	2.65	0.96	1.57	0.071	0.08
September.....	1.39	0.59	0.85	0.039	0.04
October.....	1.07	0.51	0.73	0.033	0.04
November.....	5.1	0.82	1.99	0.090	0.10
December.....	34	1.99	4.72	0.215	0.25
January.....	91	3.07	13.0	0.591	0.68
February.....	235	3.21	22.5	1.02	1.06
March.....	335	10.7	102	4.64	5.35
April.....	314	14	56.4	2.56	2.86
May.....	100	10	32.9	1.49	1.72
June.....	365	16	76.5	3.48	3.88
The year.....	365	0.51	26.8	1.22	18.57

GENESEE RIVER DRAINAGE BASIN

GENESEE RIVER

DESCRIPTION

Genesee river rises in Potter county, Pa., 8 or 10 miles south of the New York-Pennsylvania boundary, flows northwestward for about 32 miles by general course, then turns to the northeast and empties into Lake Ontario, 7 miles north of Rochester. The entire length of the stream, following bends, is about 135 miles and the drainage area is about 2,450 square miles.

In the 39 miles between Belmont, in central Allegany county, and Portage, in southwestern Livingston county, the fall of the water-surface is 253 feet, an average of 6.4 feet per mile. At Portage the river plunges down in three magnificent falls and thence nearly to Mount Morris flows at the bottom of a deep gorge. From Mount Morris to Rochester the valley is broad and open and the stream is bordered by meadows subject to occasional overflow. At Rochester there is another abrupt descent over three heavy falls, amounting to about 260 feet within the city.

In the northern counties the surface is rolling, with long, easy slopes, except along the streams, which usually lie in deep ravines, hemmed in by steep banks. On the whole there is a gradual rise away from the lakes and in the upper half of the basin the country becomes rough and is broken by ridges, the summits of which attain elevations of from 2,000 to 2,500 feet above tide.

Precipitation is rather low, the average rainfall being about 35 inches, some 14 inches smaller than that of the upper Sacandaga.

Above all the private dams at Rochester the State formerly maintained a dam for diverting water to the Erie canal, and in the basin of Black creek, one of the upper tributaries of the Genesee from the west, are two reservoirs (Rockville and Cuba reservoirs), owned by the State, also used for the benefit of the Erie canal.

Cuba reservoir, on the Genesee-Allegheny divide, receives the drainage from a tributary area of 26.6 square miles. The storage volume is 454,000,000 cubic feet. The overflow from this reservoir enters Allegheny river. The storage water may be turned into the summit level of the abandoned Genesee Valley canal and thence into Genesee river.

The series of remarkable lakes tributary to the Oswego basin is continued westward into the basin of the Genesee and includes Conesus, Hemlock, Canadice, and Honeoye lakes. These lakes serve as natural reservoirs and have inlets draining considerable areas at their upper ends. The slopes adjacent to the lakes themselves are narrow and steep and are drained by gullies and torrential brooks. The area below the lakes is rolling and the soil is rich and extensively cultivated. The areas and elevations of these lakes are shown in the following table:

Areas and elevation of LAKES IN GENESSEE RIVER BASIN ^a

LAKE	Elevation	Water-surface area	Drainage area	Per cent water-surface
	<i>Feet</i>	<i>Square miles</i>	<i>Square miles</i>	
Hemlock lake.....	896	2.8	46.8	5.98
Canadice lake.....	1,092	1.0	12.6	7.94
Honeoye lake.....	800	2.5	39.6	6.31

^a These lake basins are shown on the Honeoye, Canandaigua, Naples and Wayland topographic atlas sheets of the United States Geological Survey, from which the area of Honeoye lake has been taken. Areas of Hemlock and Canadice lakes are from surveys of the Rochester water-works.

Drainage areas of tributaries of GENESSEE RIVER ^a

NAME OF STREAM	AREA IN SQUARE MILES		
	Tributary	GENESSEE RIVER	
		Above tributary	Below tributary
Cryder creek.....	43.3	99.9	143.2
Chenunda creek.....	30.0	181.0	211.0
Dyke's creek.....	68.3	214.0	282.3
Vandemark creek.....	21.6	301.3	322.9
Knight's creek.....	22.3	323.9	346.2
Phillips creek.....	32.3	372.8	405.1
Vancampens creek.....	55.7	440.4	496.1
Angelica creek.....	82.1	481.1	563.2
White creek.....	15.9	569.2	585.1
Black creek (Allegany county).....	31.1	595.5	626.6
Crawford creek.....	11.8	637.6	649.4
Canadesa creek.....	63.3	651.0	714.3
Cold creek.....	41.0	745.3	786.3
Rush creek.....	35.3	787.0	822.3
Wascoy creek (including East Koy creek).....	108.6	833.6	942.2
East Koy creek.....	59.9	.....	.....
Wolf creek.....	19.3	974.9	994.2
Silver lake outlet.....	30.4	1,029.2	1,059.6
Canaseraga creek, Livingston Co. (including Keshequa creek).....	340.7	1,066.4	1,407.1
Keshequa creek (formerly Coshaqua).....	82.0	.....	.....
Beards creek.....	41.3	1,423.1	1,464.4
Conesus lake outlet.....	88.8	1,555.5	1,643.9
Honeoye creek.....	262.6	1,875.9	1,938.5
Allen's creek.....	198.1	1,947.1	2,145.2
Black creek (Monroe county).....	211.8	2,168.5	2,380.0
Genesee river, total at mouth.....	.....	.....	2,445.6

^a From an early report on Genesee river storage, Report of State Engineer, 1890, plate facing p. 422.

GENESEE RIVER AT SCIO

Location.—At the steel highway bridge, $\frac{1}{4}$ mile above Vandemark creek, $\frac{1}{2}$ mile above the village of Scio, Allegany county, and 1 mile above Knight creek.

Drainage area.—297 square miles. (Measured on U. S. G. S. maps of states of New York and Pennsylvania.)

Records available.—June 12, 1916, to June 3, 1917.

Gage.—Vertical staff, attached to downstream face of left bridge abutment. Gage read by Raymond Sisson.

Discharge measurements.—Made from the downstream side of the bridge at medium and high stages and by wading at low stages.

Channel and control.—Coarse gravel and probably permanent.

Extreme of discharge.—Current year: Maximum stage recorded, 4.9 feet at 5 P. M., June 7; discharge, 3,440 second-feet. Minimum stage recorded, 0.60 foot at 8 A. M. and 6 P. M., August 25 and 26; discharge, 25 second-feet.

1916–1917: Maximum stage recorded, 8.7 feet at 8 A. M., June 17, 1916; discharge, approximately 9,800 second-feet.

Ice.—Stage-discharge relation affected by ice.

Accuracy.—Stage-discharge relation practically permanent. Affected by ice during a large portion of the period from December to March, inclusive. Rating curve well defined between 25 and 5,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good except for periods when the stage-discharge relation is affected by ice, when results are fair.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of GENESEE RIVER AT SCIO, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 24.....	E. D. Burchard.....	0.80	67.2
Sept. 11 a.....	E. D. Burchard.....	0.70	43.1
Sept. 11 a.....	E. D. Burchard.....	0.68	36.5
Sept. 11 a.....	E. D. Burchard.....	0.68	37.3
Oct. 26 a.....	E. D. Burchard.....	0.78	53.4
Oct. 26 a.....	E. D. Burchard.....	0.80	56.2
Dec. 30 b.....	C. S. DeGolyer.....	1.66	120
Jan. 20 b.....	C. S. DeGolyer.....	2.34	98
Feb. 10 b.....	E. D. Burchard.....	2.08	65.4
Mar. 12.....	E. D. Burchard.....	5.78	4,670
Mar. 12.....	E. D. Burchard.....	5.59	4,480
Mar. 12.....	E. D. Burchard.....	4.84	3,340
Mar. 12.....	E. D. Burchard.....	4.40	2,790
Mar. 28.....	C. C. Covert.....	3.11	1,390
May 31 a.....	E. D. Burchard.....	2.19	679
May 31 a.....	E. D. Burchard.....	2.17	675

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily gage height, in feet, of GENESEE RIVER AT SCIO, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1.52	0.80	0.71	0.70	0.83	1.7	1.75	2.3	2.2	3.4	1.19	2.15
2.....	1.42	0.80	0.70	0.70	0.81	1.55	1.65	2.25	1.75	3.2	1.17	2.0
3.....	1.55	0.80	0.70	0.73	0.83	1.25	1.55	2.2	1.7	3.1	1.09	1.9
4.....	1.42	0.80	0.72	0.72	0.78	1.35	1.6	2.2	1.43	2.5	1.07	1.8
5.....	1.30	0.80	0.70	0.71	0.80	1.30	1.9	2.2	1.6	2.45	1.49	1.7
6.....	1.19	0.78	0.71	0.71	0.78	1.25	3.7	2.2	2.6	2.6	2.4	1.7
7.....	1.13	0.75	0.70	0.68	0.79	1.30	1.6	2.2	2.0	2.6	2.15	4.6
8.....	1.09	0.78	0.71	0.71	0.81	1.30	1.5	2.3	1.25	2.4	2.05	3.5
9.....	1.04	0.72	0.70	0.70	0.83	1.35	1.5	2.15	1.20	2.25	2.05	3.8
10.....	1.03	0.70	0.70	0.70	0.82	1.20	1.5	2.0	1.20	1.95	2.4	3.3
11.....	1.12	0.72	0.72	0.74	0.81	1.15	1.46	2.0	2.8	1.9	2.05	3.4
12.....	1.02	0.77	0.70	0.72	0.93	1.10	2.8	1.95	4.8	2.05	1.9	2.8
13.....	1.09	0.76	0.70	0.76	0.98	1.40	2.8	1.85	2.7	1.95	1.8	2.35
14.....	1.30	0.70	0.74	0.74	1.10	1.20	2.6	.....	2.6	2.1	1.7	2.1
15.....	1.06	0.70	0.90	0.72	1.00	1.30	2.8	.....	2.25	1.8	1.65	1.95
16.....	0.96	0.70	0.80	0.71	0.96	1.40	2.8	.....	2.05	1.75	1.39	1.9
17.....	0.97	0.75	0.76	0.71	0.96	1.15	2.7	2.2	2.6	1.55	1.45	1.75
18.....	0.95	0.70	0.79	0.71	0.97	1.33	2.6	.....	2.25	1.55	1.38	1.65
19.....	0.90	0.70	0.78	0.77	0.86	1.30	2.4	.....	1.85	1.5	1.34	1.6
20.....	0.87	0.71	0.77	0.76	0.86	1.32	1.31	.....	1.8	1.45	1.9	1.40
21.....	0.87	0.70	0.76	0.74	0.79	1.33	1.30	.....	2.4	1.40	1.65	1.37
22.....	0.95	0.70	0.78	0.76	0.77	1.30	1.32	.....	2.15	1.43	2.0	1.30
23.....	0.88	0.68	0.77	0.75	0.79	1.40	1.5	.....	2.6	1.37	2.0	1.25
24.....	0.84	0.62	0.78	0.82	1.6	1.30	1.5	.....	4.2	1.30	1.9	3.0
25.....	0.83	0.60	0.70	0.76	1.25	1.35	2.6	.....	2.5	1.27	1.95	1.7
26.....	0.82	0.60	0.70	0.71	1.26	1.41	2.45	2.3	2.9	1.21	1.8	1.45
27.....	0.82	0.62	0.70	0.80	1.21	1.42	2.4	4.4	3.3	1.21	1.85	2.3
28.....	0.80	0.78	0.71	0.82	1.25	1.65	2.2	2.2	3.2	1.17	2.7	1.6
29.....	0.80	0.72	0.76	0.80	2.15	1.7	2.2	.....	2.8	1.14	2.9	2.2
30.....	0.80	0.70	0.72	0.81	1.95	1.65	2.2	.....	2.5	1.40	2.55	1.8
31.....	0.81	0.70	.....	0.82	.....	1.7	2.2	.....	2.5	.....	2.25	.....

Daily discharge, in second-feet, of GENESEE RIVER AT SCIO, for the nine months ended June 30, 1916

DAY	June	DAY	June	DAY	June
1.....		11.....		21.....	1,400
2.....		12.....	850	22.....	1,310
3.....		13.....	720	23.....	815
4.....		14.....	572	24.....	720
5.....		15.....	600	25.....	920
6.....		16.....	1,070	26.....	572
7.....		17.....	8,850	27.....	490
8.....		18.....	3,050	28.....	920
9.....		19.....	2,100	29.....	490
10.....		20.....	1,650	30.....	438

NOTE.—For corresponding gage heights see Report of State Engineer for 1916, Vol. II, page 36

Daily discharge, in second-feet, of GENESEE RIVER AT SCIO, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	336	61	43	41	69	435	149	130	720	1,690	194	690
2.....	298	61	41	41	64	361	100	120	464	1,490	186	600
3.....	361	61	41	47	69	290	70	109	438	1,409	154	545
4.....	298	61	45	45	57	265	85	100	302	920	147	490
5.....	242	61	41	43	61	242	190	110	386	886	321	438
6.....	194	57	43	43	57	220	2,000	100	990	990	850	438
7.....	170	51	41	38	59	242	1,000	100	690	990	690	3,080
8.....	154	47	43	43	64	242	340	110	220	850	630	1,790
9.....	136	45	41	41	69	265	340	96	198	750	630	2,190
10.....	132	41	41	41	66	198	340	46	198	572	850	1,590
11.....	166	45	45	49	64	178	320	48	1,150	545	630	1,680
12.....	128	55	41	45	98	158	280	46	3,310	630	545	1,150
13.....	154	53	41	58	114	240	280	26	1,070	572	490	815
14.....	242	41	49	49	158	140	220	40	990	660	438	660
15.....	143	41	88	45	121	150	280	60	750	490	412	572
16.....	114	41	61	42	108	160	260	90	630	464	283	545
17.....	111	51	53	43	108	60	280	110	990	361	312	464
18.....	104	41	59	43	111	90	200	160	750	361	279	412
19.....	98	41	57	55	77	60	180	180	518	386	280	366
20.....	80	43	55	53	77	65	90	180	490	312	545	288
21.....	80	41	53	49	59	70	90	160	850	288	412	274
22.....	104	41	57	53	55	60	95	130	690	302	690	362
23.....	83	38	56	51	59	90	220	100	990	274	600	220
24.....	72	28	57	66	386	60	220	90	2,560	242	545	1,310
25.....	69	25	41	53	220	75	280	100	920	229	572	438
26.....	66	25	41	43	224	90	190	140	1,280	262	490	312
27.....	66	28	41	61	202	95	180	2,100	1,580	202	518	780
28.....	61	57	43	66	220	180	100	720	1,490	186	1,070	366
29.....	61	45	53	61	690	170	110	.....	1,150	174	1,230	720
30.....	61	41	45	64	572	120	110	.....	920	288	955	490
31.....	64	41	.....	66	.....	120	100	.....	920	.....	750	.....
Mean...	143	45.4	48.5	49.5	145	165	278	196	918	598	595	795

NOTE.—Discharge, December 13 to February 27, inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage-height graph and comparison with similar studies for St. Helena and Jones bridge.

Monthly discharge of **GENESEE RIVER AT SCIO**, for the year ended June 30, 1917
 [Drainage area, 297 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	361	61	143	0.481	0.55
August.....	61	25	43.4	0.153	0.18
September.....	88	41	48.5	0.163	0.18
October.....	66	33	49.5	0.167	0.19
November.....	572	55	145	0.488	0.54
December.....	438	60	165	0.556	0.64
January.....	2,000	70	273	0.936	1.08
February.....	2,100	26	196	0.660	0.69
March.....	3,310	198	918	3.09	3.56
April.....	1,680	174	588	1.98	2.21
May.....	1,230	147	535	1.80	2.08
June.....	3,050	220	795	2.68	2.99
The year.....	3,310	25	326	1.10	14.89

GENESEE RIVER AT ST. HELENA

Location.—At the steel highway bridge in the hamlet of St. Helena, Wyoming county, about $5\frac{1}{2}$ miles below the village of Portageville and the site of the proposed storage dam of the New York State Conservation Commission, and $9\frac{1}{2}$ miles above the mouth of the Canaseraga creek.

Drainage area.—1,030 square miles.

Records available.—August 14, 1908, to June 30, 1917.

Gage.—Gurley 7-day water-stage recorder, installed July 22, 1916. Prior to this date a chain fastened to the upstream side of the bridge, middle span, installed August 14, 1908, and a Gurley printing water-stage recorder, installed August 24, 1911. Water-stage recorder inspected and chain gage read by Herman Piper.

Discharge measurements.—Made from the bridge at high stages and by wading at low and medium stages.

Channel and control.—Gravel and rocks; occasionally shifting.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 8.70 feet at 11 A. M., March 12; discharge, 16,700 second-feet. Minimum stage from water-stage recorder, 1.80 feet at 1 A. M., October 2; discharge, 50 second-feet.

1908-1917: Maximum stage from water-stage recorder, 12.81 feet at 8 A. M., May 17, 1916; discharge, 43,500 second-feet. Minimum stage recorded, 1.70 feet at 5 P. M., October 5, and 8 A. M., October 17, 1913; discharge, approximately 18 second-feet.

Ice.— Stage-discharge relation somewhat affected by ice.

Accuracy.— Stage-discharge relation not permanent. Rating curve for water-stage recorder, used July 1 to March 12, well defined between 75 and 2,000 second-feet and fairly well defined between 2,000 and 30,000 second-feet. Rating curve for chain gage, used March 13 to June 30, well defined between 500 and 1,600 second-feet. Chain gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table, except for days of great range in stage, when it was determined by averaging the results obtained by applying gage heights for two-hour periods to rating table. Results good.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

**Discharge measurements of GENESEE RIVER AT ST. HELENA, during the year ended
June 30, 1917**

DATE	MADE BY	GAGE HEIGHT		Discharge Sec.-ft.
		Chain	Hook	
		<i>Feet</i>	<i>Feet</i>	
July 23 a.....	E. D. Burchard.....	2.77	2.77	330
Sept. 8.....	E. D. Burchard.....	2.62	2.62	244
Dec. 20 b.....	C. S. DeGolyer.....	4.08	4.03	990
Jan. 20 c.....	C. S. DeGolyer.....	5.09	5.07	300
Feb. 22 c.....	C. S. DeGolyer.....	5.03	5.04	450
Mar. 16.....	E. D. Burchard.....	4.40	4.22	2,010
April 13.....	C. S. DeGolyer.....	4.24	4.45	1,800
May 18 a.....	E. D. Burchard.....	3.24	3.24	707
May 18 a.....	E. D. Burchard.....	3.24	3.24	717
May 26.....	E. D. Burchard.....	3.96	4.00	1,440
June 22 a.....	E. D. Burchard.....	3.18	3.31	648
June 27.....	C. S. DeGolyer.....	4.72	4.91	2,510

a Measurement made by wading.

b Measurement made through partial ice cover.

c Measurement made through complete ice cover.

**Daily gage height, in feet, of GENESEE RIVER AT ST. HELENA, for the year ended
June 30, 1917**

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.56	2.43	2.27	....	....	....	3.47	5.7	....	6.2	2.96	4.7
2.....	3.49	2.40	2.22	....	....	3.75	3.51	5.65	....	6.8	3.05	4.6
3.....	3.91	2.35	2.02	....	....	3.48	3.41	5.35	....	5.8	3.1	4.4
4.....	3.79	2.35	2.19	....	....	3.32	3.40	5.1	....	5.0	2.98	3.9
5.....	3.50	2.33	2.20	....	....	3.24	4.26	5.0	....	4.6	3.3	3.7
6.....	3.30	2.28	2.18	....	....	3.18	5.7	4.85	3.25	4.8	4.4	4.0
7.....	3.16	2.37	2.17	....	....	3.06	5.4	4.75	3.38	5.6	5.1	7.5
8.....	3.06	2.35	2.45	....	....	2.96	4.6	4.75	3.51	5.0	4.6	5.6
9.....	2.99	2.32	2.53	....	....	2.93	4.75	4.65	3.41	4.7	4.1	5.5
10.....	2.98	2.30	2.40	....	....	2.93	4.26	4.5	3.35	4.3	4.7	6.0
11.....	2.96	2.29	2.44	....	....	2.92	3.88	4.85	....	4.15	4.3	6.8
12.....	2.94	2.30	2.31	....	2.58	2.83	3.45	4.85	....	4.45	3.9	5.1
13.....	3.15	2.36	2.27	....	....	2.76	3.50	4.75	5.6	4.2	3.55	4.5
14.....	4.02	2.51	2.22	....	....	2.69	3.64	4.7	5.4	3.85	3.6	4.1
15.....	3.48	2.45	2.10	2.48	....	2.65	3.55	4.65	5.2	3.75	3.4	3.85
16.....	3.14	2.38	2.31	2.49	2.90	2.77	3.98	4.6	4.4	3.5	3.2	3.7
17.....	2.98	2.38	2.42	2.44	2.84	2.73	4.42	4.6	5.0	3.3	3.25	3.6
18.....	2.88	2.28	2.40	2.41	2.80	2.72	4.70	4.7	5.2	3.5	3.2	3.5
19.....	2.82	2.28	2.37	2.41	2.73	2.71	4.7	4.85	4.35	3.4	3.1	3.7
20.....	2.75	2.10	2.31	2.56	2.87	2.73	4.7	5.05	4.2	3.4	3.55	3.5
21.....	2.70	2.31	2.28	2.68	3.00	2.72	4.8	5.1	5.2	3.35	3.9	3.25
22.....	2.72	2.25	2.28	....	2.93	2.74	4.95	5.0	5.0	3.3	3.85	3.1
23.....	2.73	2.20	2.21	....	2.84	2.63	5.1	4.9	5.5	3.3	4.3	3.0
24.....	2.70	2.14	2.15	....	....	2.70	5.25	5.0	7.7	3.2	4.0	5.7
25.....	2.60	2.25	2.35	....	....	2.78	5.45	5.2	5.7	3.15	4.4	4.4
26.....	2.55	2.21	2.22	....	3.50	2.87	5.05	5.65	5.7	3.1	3.9	3.85
27.....	2.53	2.07	2.22	2.42	3.40	2.91	5.1	7.4	5.9	3.0	3.7	4.7
28.....	2.52	2.30	2.20	2.41	3.40	3.22	4.95	6.5	6.0	2.98	4.8	3.95
29.....	2.48	2.23	2.22	....	....	3.92	5.0	....	5.5	2.97	5.8	3.65
30.....	2.40	2.08	2.22	....	4.75	3.80	5.1	....	5.1	2.92	5.2	3.9
31.....	2.48	2.23	....	....	....	3.57	5.4	....	5.0	....	4.5	....

NOTE.—Stage-discharge relation affected by ice, December 14 to February 26. Gage heights, March 13 to June 30, from chain gage.

Daily discharge, in second-feet, of GENESEE RIVER AT ST. HELENA, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	976	177	128	81	177	1,760	420	900	4,180	6,000	486	2,520
2.....	900	166	115	104	189	1,190	460	900	2,740	7,860	552	2,350
3.....	1,390	150	77	111	201	890	390	650	2,090	4,920	560	2,030
4.....	1,240	150	108	110	209	738	390	480	1,490	3,090	502	1,360
5.....	910	144	110	107	167	672	1,100	440	738	2,360	760	1,140
6.....	720	130	106	104	193	624	5,000	320	690	2,700	2,030	1,490
7.....	609	157	104	184	174	690	4,200	290	792	4,480	3,290	10,400
8.....	530	180	184	84	163	457	2,400	280	921	3,090	2,350	4,420
9.....	478	141	215	142	169	486	2,800	220	890	2,520	1,610	4,190
10.....	471	135	166	100	18	436	1,900	170	765	1,840	2,52	5,450
11.....	457	132	180	124	229	429	1,400	320	5,200	1,690	1,880	7,860
12.....	443	135	188	114	236	370	850	320	15,800	2,110	1,360	3,240
13.....	609	154	128	126	239	323	650	290	4,420	1,740	990	2,190
14.....	1,540	206	115	209	259	260	700	260	3,940	1,300	1,040	1,610
15.....	890	184	90	195	325	220	700	220	8,490	1,200	860	1,300
16.....	592	160	138	168	415	260	600	220	2,030	940	670	1,140
17.....	471	160	173	180	376	220	460	220	3,090	940	715	1,040
18.....	402	180	166	170	360	190	360	260	3,490	940	670	940
19.....	363	130	157	170	312	170	340	340	1,960	850	590	1,140
20.....	322	90	138	228	896	170	360	460	1,740	850	990	940
21.....	295	136	180	285	465	170	400	800	3,490	805	1,360	715
22.....	306	122	130	299	436	170	503	420	3,090	760	1,300	590
23.....	312	110	112	275	376	130	650	390	4,180	760	1,880	515
24.....	295	98	100	236	1,590	180	700	420	11,200	670	1,490	4,670
25.....	245	122	150	224	1,310	170	750	600	4,670	680	2,030	2,030
26.....	224	112	115	196	910	200	380	3,200	4,670	590	1,360	1,300
27.....	215	85	115	173	810	220	340	10,600	5,180	515	1,140	2,620
28.....	211	135	110	170	810	360	240	7,270	5,450	502	2,700	1,420
29.....	195	118	115	113	2,480	900	960	.....	4,190	496	4,920	930
30.....	166	87	115	175	2,740	700	360	.....	3,280	465	3,490	1,360
31.....	196	118	.....	169	.....	600	600	.....	3,090	.....	2,190	.....
Mean...	547	136	121	165	563	452	989	1,100	3,636	1,920	1,560	2,430

NOTE.—Discharge, December 14 to February 26, estimated, because of ice, from discharge measurements, weather records, study of gage-height graph and comparison with similar studies for Soio, Jones bridge and Rochester. Gage height, March 13 to June 30, is mean of two observations per day on the chain gage.

Monthly discharge of GENESEE RIVER AT ST. HELENA, for the year ended June 30, 1917

[Drainage area, 1,030 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,540	166	547	0.531	0.61
August.....	206	87	136	0.132	0.15
September.....	215	77	131	0.127	0.14
October.....	299	81	165	0.160	0.18
November.....	2,740	159	563	0.547	0.61
December.....	1,760	.....	452	0.489	0.51
January.....	5,000	240	999	0.960	1.11
February.....	10,600	170	1,100	1.070	1.11
March.....	15,500	680	3,630	3.62	4.05
April.....	7,860	465	1,920	1.86	2.08
May.....	4,920	499	1,560	1.51	1.74
June.....	10,400	515	2,430	2.36	2.63
The year.....	15,500	81	1,134	1.10	14.92

GENESEE RIVER AT JONES BRIDGE, NEAR MOUNT MORRIS

Location.—At the highway bridge known as Jones bridge, $11\frac{1}{2}$ miles below Canaseraga creek, about $13\frac{1}{4}$ miles above the mouth of Beads creek, about 5 miles below the village of Mt. Morris, Livingston county, and 6 miles by river above the village of Geneseo.

Drainage area.—1,410 square miles.

Records available.—May 22, 1903, to April 30, 1906; August 12, 1908, to December 31, 1913; July 12, 1915, to June 30, 1917.

Gage.—Gurley 7-day water-stage recorder, installed September 11, 1915, on the right bank about 60 feet downstream from the bridge. Prior to 1915 a chain gage fastened to upstream side of highway bridge was used. Datum of water-stage recorder is 2.73 feet higher than that for the former chain gage. Water-stage recorder inspected by Theron S. Trewer.

Discharge measurements.—Made from foot-bridge erected on the out-riggers at the upstream side of the bridge.

Channel and control.—Sandy clay; likely to shift, but as shown by measurements, fairly permanent in recent years.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 23.5 feet at 2:30 P. M., March 12; discharge, 31,800 second-feet. Minimum stage from water-stage recorder, 0.6 foot at 1 A. M., September 1; discharge, 86 second-feet.

1903–1917*: Maximum stage recorded, 25.44 feet at noon, May 17, 1916; discharge, 54,500 second-feet. Minimum stage recorded, 2.7 feet at 6 P. M., August 29, 1909; discharge, approximately 18 second-feet.

Ice.—Stage-discharge relation seriously affected by ice.

Regulation.—During extreme low water there is some diurnal fluctuation in flow from mills at Mt. Morris.

Accuracy.—Stage-discharge relation practically permanent between dates of shift. Affected by ice for considerable portion of January, February and March. Rating curve well defined between 150 and 7,000 second-feet and fairly well defined between 7,000 and 60,000 second-feet. Operation of the water-stage recorder satisfactory throughout the year. Daily discharge ascertained by applying to the rating table mean daily gage heights determined by inspecting the gage-height graph, or for days of considerable fluctuation by discharge integration.

* Not including periods of no record. See "Records available."

Coöperation.—Station maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of GENESEE RIVER AT JONES BRIDGE, NEAR MOUNT MORRIS during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 7 <i>a</i>	E. D. Burchard.....	1.04	188
Sept. 7 <i>a</i>	E. D. Burchard.....	1.02	183
Oct. 27 <i>a</i>	E. D. Burchard.....	1.29	259
Jan. 1 <i>b</i>	C. S. DeGolyer.....	3.38	620
Jan. 18 <i>c</i>	E. D. Burchard.....	4.18	487
Feb. 16 <i>c</i>	C. C. Covert.....	2.38	302
Mar. 9.....	O. W. Hartwell.....	8.99	1,140
Mar. 15.....	E. D. Burchard.....	12.25	4,990
Mar. 30.....	O. W. Hartwell.....	7.49	4,040
Mar. 30.....	O. W. Hartwell.....	7.05	3,720
May 23.....	E. D. Burchard.....	4.74	2,210
May 23.....	E. D. Burchard.....	4.75	2,230
May 25.....	E. D. Burchard.....	5.12	2,370
June 23.....	E. D. Burchard.....	3.74	1,550
June 29.....	E. D. Burchard.....	4.10	1,680

a Measurement made by wading. *b* Measurement made through partial ice cover. *c* Measurement made through complete ice cover.

Daily gage height, in feet, of GENESEE RIVER AT JONES BRIDGE, NEAR MOUNT MORRIS, for the year ended June 30, 1917. T. S. Trewer, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2.9	1.80	0.94	....	1.25	4.4	3.4	5.0	16.5	....	2.3	5.4
2.....	2.75	1.42	.95	....	1.35	3.35	3.6	5.4	13.1	....	2.35	6.1
3.....	2.65	1.32	....	....	1.3	2.85	3.4	5.0	11.4	....	2.45	5.8
4.....	3.9	1.30	.86	....	1.4	2.5	3.35	3.8	....	....	2.35	4.2
5.....	3.35	1.22	.96	....	1.25	2.4	3.7	3.25	....	....	....	3.6
6.....	2.7	1.12	.95	....	1.3	2.3	....	3.1	....	....	....	4.1
7.....	2.5	1.25	.97	....	....	2.15	....	2.9	....	....	....	....
8.....	2.4	1.22	1.17	....	....	2.0	6.9	2.85	....	7.3	6.0	....
9.....	2.2	1.30	1.32	....	1.25	1.9	5.4	2.85	....	6.4	4.8	....
10.....	2.1	1.15	1.27	....	1.25	1.9	5.2	2.65	8.4	5.1	5.6	....
11.....	2.1	1.12	1.29	....	1.35	1.9	6.0	....	11.6	4.6	5.0	....
12.....	2.1	1.32	1.27	....	1.45	1.8	5.3	2.35	22.5	5.2	4.1	....
13.....	2.0	1.09	1.20	0.95	1.5	1.6	4.7	2.3	21.2	5.2	3.7	5.9
14.....	3.4	1.35	1.15	....	1.55	1.6	5.0	2.3	16.0	4.2	3.4	4.9
15.....	3.0	1.35	1.16	1.25	1.65	2.2	4.8	2.3	12.8	3.7	3.0	4.2
16.....	2.4	1.36	.97	1.3	1.9	2.85	4.5	2.35	7.6	3.5	2.75	3.8
17.....	2.15	1.28	.99	1.3	1.9	2.9	4.2	2.35	7.1	3.3	2.65	3.6
18.....	1.99	1.16	1.25	1.25	1.8	2.85	4.1	2.65	8.5	3.15	2.65	3.25
19.....	1.89	1.18	1.23	1.2	1.7	2.75	3.8	2.9	5.7	3.05	2.5	....
20.....	1.79	1.08	1.12	....	1.8	2.65	3.5	3.15	4.8	3.0	2.9	3.4
21.....	2.35	1.23	1.05	1.55	2.0	2.7	3.5	3.35	7.4	3.0	3.7	3.35
22.....	2.8	1.19	1.10	1.65	2.05	2.7	3.6	3.35	6.9	2.9	3.6	2.85
23.....	2.15	1.06	1.06	1.65	1.9	2.55	3.6	3.2	8.6	2.8	4.6	2.6
24.....	1.97	1.03	.84	1.5	....	2.45	3.8	3.4	14.9	2.8	4.4	....
25.....	1.81	.97	.98	1.45	3.9	2.65	4.3	4.0	12.8	2.6	4.8	....
26.....	1.67	.87	1.07	1.4	2.95	2.75	4.0	5.3	9.4	2.5	4.4	....
27.....	1.63	.87	1.04	1.25	2.8	2.9	3.35	15.2	9.4	2.45	3.7	....
28.....	1.67	1.05	.92	1.25	2.6	3.15	2.95	20.2	10.7	2.4	....	....
29.....	1.60	1.12	.92	....	....	4.1	2.9	....	8.7	2.3	....	4.1
30.....	1.35	.95	1.00	....	5.4	4.4	3.15	....	7.6	2.25	....	4.0
31.....	1.50	.90	....	1.2	....	3.8	3.8	....	6.5	....	6.0	....

NOTE.—Stage-discharge relation affected by ice, December 14 to March 22.

Daily discharge, in second-feet, of GENESSEE RIVER AT JONES BRIDGE, NEAR MOUNT MORRIS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	990	341	162	a 166	254	1,867	650	1,700	6,000	a 5,990	690	2,540
2.....	908	312	165	a 118	288	1,240	700	1,800	2,800	a 7,120	705	3,030
3.....	855	278	154	a 154	271	962	650	1,600	1,600	a 6,400	755	2,820
4.....	1,560	271	142	a 160	305	780	600	950	1,000	a 3,900	705	1,770
5.....	1,240	245	168	a 161	254	730	800	650	1,100	a 2,820	a 918	1,410
6.....	880	213	165	a 152	271	680	7,000	600	1,100	a 3,190	a 2,180	1,710
7.....	780	254	170	a 153	a 264	612	5,500	800	1,200	a 4,390	a 3,630	a 9,480
8.....	730	245	229	139	a 246	545	3,400	480	1,200	3,900	2,960	a 9,300
9.....	685	271	278	a 125	254	502	2,600	480	1,100	3,240	2,160	a 4,800
10.....	590	222	261	a 183	254	502	1,900	400	1,100	2,340	2,680	a 4,920
11.....	590	213	268	a 149	288	502	1,300	840	3,200	2,020	2,280	a 8,580
12.....	590	278	261	a 161	323	460	900	300	14,000	2,410	1,710	a 4,680
13.....	545	204	238	165	341	370	750	280	13,000	2,410	1,470	2,890
14.....	1,260	288	222	a 231	360	340	850	280	8,000	1,770	1,200	2,210
15.....	1,040	288	226	254	399	300	800	280	6,600	1,470	1,050	1,770
16.....	780	291	170	271	502	400	600	280	2,000	1,250	912	1,580
17.....	612	264	175	271	502	420	500	280	2,000	1,230	858	1,410
18.....	541	226	254	254	460	400	460	400	3,200	1,149	858	1,300
19.....	498	232	248	238	419	360	400	500	1,700	1,080	780	a 2,310
20.....	456	201	213	a 264	460	320	320	650	1,600	1,050	995	1,290
21.....	705	248	192	360	545	340	340	700	3,400	1,050	1,470	1,280
22.....	935	235	207	399	568	340	420	700	3,400	995	1,410	988
23.....	612	105	195	399	502	280	460	650	4,890	940	2,010	830
24.....	532	187	138	341	a 978	260	600	700	10,700	940	1,890	a 3,500
25.....	464	170	173	323	1,560	320	850	1,000	8,560	830	2,150	a 3,330
26.....	407	145	198	305	1,020	360	750	1,800	5,530	780	1,890	a 1,980
27.....	391	145	190	254	935	420	600	7,500	5,530	755	1,470	a 4,220
28.....	407	192	157	254	633	540	380	10,000	6,630	730	a 2,700	a 2,710
29.....	379	213	157	a 225	a 1,580	1,000	350	.....	4,970	690	a 5,780	1,710
30.....	298	165	178	a 186	2,490	1,200	550	.....	4,130	658	a 4,500	1,650
31.....	341	152	.....	238	.....	850	900	.....	3,310	.....	2,960	.....
Mean....	698	232	198	228	590	586	1,190	1,280	4,800	2,250	1,860	3,000

a Daily discharge is mean of twelve bi-hourly discharges.

NOTE.— Discharge, December 14 to March 22, estimated, because of ice, from discharge measurements, weather records, study of gage-height graph and comparison with similar studies for Scio, St. Helena and Rochester.

**Monthly discharge of GENESSEE RIVER AT JONES BRIDGE, NEAR MOUNT MORRIS
for the year ended June 30, 1917**

[Drainage area, 1,410 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,560	288	693	0.491	0.57
August.....	341	145	232	0.165	0.19
September.....	278	138	198	0.140	0.16
October.....	399	118	228	0.162	0.19
November.....	2,480	246	590	0.410	0.47
December.....	1,860	260	586	0.416	0.48
January.....	7,000	320	1,190	0.844	0.97
February.....	10,000	280	1,280	0.908	0.95
March.....	14,000	1,000	4,300	3.05	3.52
April.....	7,120	658	2,250	1.60	1.78
May.....	5,780	690	1,860	1.32	1.52
June.....	9,450	830	3,060	2.17	2.42
The year.....	14,000	118	1,370	0.972	13.22

GENESEE RIVER AT GENESEE JUNCTION

This station, established May 14, 1917, is located at the mouth of Black creek, which enters the Genesee river from the west at Genesee junction, about $5\frac{1}{2}$ miles above the city of Rochester and just above the West Shore railroad bridge over the Genesee river. The gage, No. 227, a standard Type A gage, having a range of 18 feet between elevations 510.0 and 528.0 (B. C. datum), is secured to the east wing of the north abutment of the Scottsville highway bridge over Black creek. The gage is read once daily, to half-tenths.

Daily elevation of water-surface (B. C. datum) of GENESEE RIVER AT GENESEE JUNCTION, for the year ended June 30, 1917. J. Horton Begy, Observer

DAY	June	DAY	June	DAY	June
1.....		11.....	516.3	21.....	510.25
2.....		12.....	515.4	22.....	509.65
3.....		13.....	513.0	23.....	509.3
4.....		14.....	511.7	24.....	509.45
5.....		15.....	510.85	25.....	510.2
6.....		16.....	510.4	26.....	510.8
7.....		17.....	510.1	27.....	513.6
8.....		18.....	509.8	28.....	512.55
9.....		19.....	510.45	29.....	511.2
10.....		20.....	510.8	30.....	510.6

GENESEE RIVER AT ROCHESTER

Location.—At the Elmwood avenue bridge at the north end of Genesee Valley Park, $3\frac{1}{4}$ miles below the mouth of Black creek, $3\frac{1}{2}$ miles above the center of the city of Rochester, Monroe county, and $7\frac{1}{2}$ miles above the mouth of the river.

Drainage area.—2,360 square miles.

Records available.—February 9, 1904, to June 30, 1917. Fragmentary records prior to this period published in Water-Supply Papers 24, 65 and 97.

Gage.—Gurley water-stage recorder, installed in December, 1910, in the pump-house immediately below the bridge on the right bank. Recorder inspected by Geo. A. Bailey. Prior to December, 1910, a staff gage, bolted to the downstream end of the first pier from the right abutment. Elevation of zero of gage, 506.848, Barge canal datum, and 245.591, Rochester city datum.

Discharge measurements.—Made from downstream side of the bridge. Prior to 1904, measurements and elevation of water-surface taken in conjunction with the water flowing over and around Johnson and Seymour dam in the city of Rochester.

Channel and Control.—Smooth gravel; considered permanent.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 7.38 feet at 7 P. M., March 14; discharge, 14,200 second-feet. Minimum stage from water-stage recorder, 0.95 foot at 12 P. M., October 9; discharge, 215 second-feet.

1904–1917: Maximum stage from water-stage recorder, 15.3 at midnight, March 30, 1916; discharge, 48,300 second-feet. Minimum stage from water-stage recorder, 0.71 foot from 10 P. M., September 30, to 4 A. M., October 1, 1913; discharge, 154 second-feet.

Ice.—Stage-discharge relation affected by ice during a large part of the period from December to March, inclusive.

Accuracy.—Stage-discharge relation practically permanent; affected by ice during a large portion of the period from December to March, inclusive. Rating curve well defined between 2,000 and 44,000 second-feet. Operation of water-stage recorder satisfactory throughout the year. Daily discharge ascertained by applying to the rating table mean daily gage heights determined by averaging hourly gage heights. Results good for periods when the stage-discharge relation is not affected by ice and fairly good for other periods.

Coöperation.—Station maintained by the United States Geological Survey in coöperation with the State Conservation Commission. Water-stage recorder inspected by an employee of the Rochester Railway and Light Company.

Discharge measurements of GENESEE RIVER AT ROCHESTER, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 12.....	E. D. Burchard.....	1.76	1,050
July 12.....	E. D. Burchard.....	1.75	1,050
Sept. 5.....	E. D. Burchard.....	1.07	303
Jan. 2 a.....	C. S. DeGolyar.....	1.71	859
Jan. 17 a.....	E. D. Burchard.....	2.20	756
Feb. 7 a.....	E. D. Burchard.....	2.00	794
Mar. 8 a.....	O. W. Hartwell.....	2.04	1,220
Mar. 16.....	E. D. Burchard.....	5.27	8,090
May 16.....	E. D. Burchard.....	2.04	1,490
May 17.....	E. D. Burchard.....	1.94	1,320
June 20.....	E. D. Burchard.....	3.22	3,430

a Measurement made through complete ice cover.

Daily gage height, in feet, of GENESEE RIVER AT ROCHESTER, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1.85	1.40	1.10	1.04	1.15	2.35	1.91	1.86	6.1	3.95	1.79	3.35
2.....	1.62	1.40	1.07	1.01	1.15	2.00	1.70	2.34	5.2	5.5	1.80	3.3
3.....	2.26	1.36	1.08	1.02	1.17	1.80	1.68	2.7	4.0	5.5	1.80	3.2
4.....	2.75	1.33	1.08	1.03	1.18	1.70	1.68	2.6	3.25	4.9	1.84	2.85
5.....	2.65	1.30	1.07	1.03	1.19	1.62	1.68	2.33	2.8	3.9	1.84	2.6
6.....	2.33	1.28	1.07	1.05	1.17	1.55	2.03	2.12	2.31	3.85	2.65	2.6
7.....	2.08	1.26	1.09	1.03	1.19	1.60	4.2	1.97	2.05	5.0	3.45	4.25
8.....	1.94	1.26	1.11	1.04	1.19	1.48	3.8	1.76	2.05	5.1	3.75	7.1
9.....	1.84	1.27	1.13	.99	1.16	1.45	2.85	1.78	2.23	4.5	3.3	.....
10.....	1.79	1.25	1.17	.99	1.17	1.38	2.47	1.82	2.36	3.85	2.9	.....
11.....	1.77	1.25	1.17	1.05	1.18	1.36	2.27	1.87	2.8	3.25	3.1	6.5
12.....	1.74	1.22	1.16	1.02	1.18	1.41	1.93	1.81	5.3	3.1	2.8	6.4
13.....	1.72	1.24	.73	1.03	1.25	1.37	1.86	1.79	7.0	3.35	2.5	4.7
14.....	1.87	1.22	.47	1.04	1.30	1.29	1.58	1.59	7.3	3.15	2.35	3.75
15.....	2.40	1.23	.47	1.07	1.30	1.30	1.92	1.62	7.0	2.8	2.20	3.15
16.....	2.13	1.27	.86	1.08	1.33	1.18	1.98	1.63	5.6	2.6	2.05	2.85
17.....	1.86	1.24	1.10	1.14	1.40	1.12	2.01	1.58	4.45	2.5	1.94	2.65
18.....	1.69	1.21	1.08	1.17	1.41	1.21	2.02	1.55	4.7	2.41	1.90	2.45
19.....	.....	1.20	1.11	1.14	1.35	1.18	1.84	1.64	4.5	2.33	1.89	2.6
20.....	.....	1.16	1.15	1.15	1.36	1.18	1.73	1.84	3.7	2.27	1.92	3.1
21.....	.....	1.12	1.11	1.14	1.39	1.17	1.72	2.02	3.8	2.24	2.19	2.65
22.....	.....	1.16	1.09	1.18	1.45	1.19	1.57	2.16	4.4	2.19	2.47	2.39
23.....	2.07	1.17	1.09	1.22	1.54	1.25	1.76	2.14	4.35	2.12	2.6	2.16
24.....	1.84	1.13	1.06	1.30	1.89	1.30	1.80	2.10	5.4	2.10	2.9	2.65
25.....	1.71	1.12	1.07	1.27	2.11	1.15	1.66	2.20	6.8	2.07	2.9	3.9
26.....	1.61	1.09	1.04	1.23	1.77	1.15	2.00	2.45	5.6	1.98	3.05	3.25
27.....	1.54	1.07	1.07	1.21	1.80	1.21	2.01	4.05	4.9	1.93	2.75	4.15
28.....	1.51	1.09	1.10	1.19	1.75	1.25	1.80	6.6	5.1	1.90	2.55	4.5
29.....	1.50	1.10	1.08	1.15	2.38	1.34	1.60	.....	5.1	1.83	3.85	3.5
30.....	1.46	1.12	1.04	1.12	2.75	1.58	1.57	.....	4.6	1.79	4.8	2.95
31.....	1.44	1.12	.....	1.12	.....	1.99	1.62	.....	4.05	.....	4.15	.....

NOTE.—Stage-discharge relation affected by ice, December 28 to March 11, inclusive. No record, June 9 and 10.

**Daily discharge, in second-feet, of GENESSEE RIVER AT ROCHESTER, for the year ended
June 30, 1917**

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,180	630	330	282	375	1,880	1,100	950	9,500	4,800	1,100	3,580
2.....	884	680	306	258	375	1,370	850	1,500	7,000	8,600	1,110	3,490
3.....	1,740	586	314	266	393	1,110	800	2,000	4,600	8,600	1,110	3,300
4.....	2,500	553	314	274	402	980	800	1,800	3,200	7,030	1,160	2,630
5.....	2,340	520	306	274	411	884	800	1,300	2,400	4,700	1,160	2,260
6.....	1,840	500	306	290	393	800	1,400	950	1,600	4,600	2,180	2,260
7.....	1,480	480	322	274	411	740	5,500	750	1,200	7,250	3,780	5,460
8.....	1,290	480	339	282	411	718	4,400	500	1,200	7,540	4,380	13,300
9.....	1,160	480	357	243	384	685	2,600	500	1,500	6,050	3,490	10,300
10.....	1,100	470	393	243	393	608	2,000	500	1,700	4,600	2,760	6,580
11.....	1,070	470	393	290	402	586	1,800	480	2,400	3,400	3,120	11,500
12.....	1,030	440	384	266	402	641	1,300	440	8,060	3,120	2,590	11,200
13.....	1,010	400	.....	274	470	597	1,000	420	13,000	3,580	2,100	6,530
14.....	1,200	440	.....	282	520	510	850	400	14,000	3,210	1,880	4,390
15.....	1,950	450	.....	306	520	520	850	480	13,000	2,590	1,650	3,210
16.....	1,530	490	.....	314	553	402	900	500	8,870	2,260	1,440	2,600
17.....	1,190	400	330	366	630	348	850	460	5,930	2,100	1,290	2,340
18.....	968	430	314	393	641	480	750	420	6,530	2,000	1,240	2,020
19.....	.....	420	339	366	575	402	700	500	6,050	1,840	1,230	2,260
20.....	.....	384	375	375	586	402	650	750	4,280	1,760	1,270	3,120
21.....	.....	348	339	366	619	393	600	950	4,490	1,710	1,640	2,340
22.....	.....	384	322	402	685	411	600	1,100	5,810	1,640	2,060	1,940
23.....	1,470	393	322	440	788	470	750	1,100	5,700	1,540	2,260	1,590
24.....	1,160	357	298	520	1,230	520	850	1,000	8,330	1,510	2,760	2,340
25.....	993	348	306	490	1,520	375	700	1,200	12,400	1,470	2,760	4,700
26.....	872	322	282	450	1,070	375	1,100	1,500	8,870	1,340	3,030	3,400
27.....	788	306	306	430	1,110	430	1,100	4,400	7,030	1,230	2,500	5,240
28.....	752	322	330	411	1,040	460	850	11,000	7,540	1,240	2,180	6,050
29.....	740	330	314	375	1,920	500	650	.....	7,540	1,150	4,600	3,880
30.....	696	348	282	348	2,500	750	600	.....	6,290	1,100	6,780	2,850
31.....	674	348	.....	348	.....	1,200	700	.....	5,020	.....	5,240	.....
Mean....	1,200	438	332	339	724	661	1,240	1,350	6,290	3,450	2,450	4,560

NOTE.— Mean discharge, July 19 to 22, estimated, 900 second-feet; discharge, September 13 to 16, estimated, 360 second-feet; discharge, December 23 to March 11, inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage-height graph and comparison with similar studies for St. Helena and Jones bridge. Discharge, June 9 and 10, estimated.

**Monthly discharge of GENESSEE RIVER AT ROCHESTER, for the year ended June 30,
1917**

[Drainage area, 2,360 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	2,500	674	1,200	0.508	0.59
August.....	630	306	438	0.186	0.21
September.....	393	282	332	0.141	0.16
October.....	520	243	339	0.144	0.17
November.....	2,500	375	724	0.307	0.34
December.....	1,880	348	661	0.230	0.32
January.....	5,500	600	1,240	0.525	0.61
February.....	11,000	420	1,350	0.572	0.60
March.....	14,000	1,200	6,290	2.67	3.08
April.....	8,600	1,100	3,450	1.46	1.63
May.....	6,780	1,100	2,450	1.04	1.20
June.....	13,300	1,590	4,560	1.93	2.15
The year.....	14,000	243	1,920	0.814	11.06

GENESEE RIVER AT ELMWOOD AVENUE, ROCHESTER

Since the establishment of the Gurley automatic gage in December, 1910, reading the staff gage once daily has been continued. Beginning in 1913, the gage heights from the automatic gage have been published in connection with the discharge, the water-surface elevations being continued as a separate table. In July, 1916, a standard Type A gage, No. 218, having a range of 16 feet between elevations 507.0 and 523.0, was erected on the north, or downstream end of the east pier of the Elmwood avenue bridge. A standard bench-mark plug was placed in the north end of the same pier at elevation 520.0 (B. C. datum). This gage is read once daily — at 5.00 P. M.

Daily elevation of water-surface (B. C. datum) of GENESEE RIVER AT ELMWOOD AVE., ROCHESTER, for the year ended June 30, 1917. P. J. Slavin, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	508.7	508.2	507.9	507.64	507.82	508.74	507.84	507.91	512.0	512.2	508.4	509.7
2.....	508.3	508.2	507.9	507.00	507.83	508.26	507.66	508.35	511.35	512.3	508.5	510.0
3.....	509.1	508.2	507.9	507.64	507.85	507.94	507.70	509.69	510.2	511.75	508.7	509.9
4.....	509.5	508.1	507.9	507.63	507.87	507.77	507.67	508.55	509.9	511.1	508.65	509.3
5.....	509.4	508.1	507.9	507.65	507.88	507.65	507.66	508.24	509.7	510.2	508.6	509.0
6.....	509.0	508.1	507.9	507.68	507.84	507.54	508.04	508.01	509.5	510.5	509.0	509.8
7.....	508.8	508.0	507.9	507.63	507.89	507.54	510.48	507.88	508.7	510.4	510.2	511.5
8.....	508.8	508.1	507.9	507.65	507.86	507.49	509.54	507.73	508.79	510.3	510.3	513.7
9.....	508.6	508.1	507.9	507.00	507.86	507.41	508.71	507.76	508.2	510.2	509.9	512.0
10.....	508.6	508.0	508.0	507.00	507.84	507.37	508.42	507.75	508.9	510.2	509.5	511.4
11.....	508.6	508.0	508.0	507.68	507.86	507.36	508.13	507.75	509.1	509.7	509.7	512.3
12.....	508.5	508.0	508.0	507.63	507.85	507.43	507.77	507.68	512.5	509.7	509.3	513.4
13.....	508.5	508.1	508.0	507.64	507.88	507.35	507.69	507.71	512.5	509.6	509.2	510.9
14.....	508.7	508.0	508.0	507.65	507.99	507.26	507.49	507.56	513.8	509.6	509.0	510.0
15.....	509.2	508.0	507.9	507.66	507.98	507.25	507.70	507.57	513.2	509.6	508.8	509.6
16.....	508.8	508.1	507.9	507.69	507.99	507.15	507.74	507.60	511.7	509.5	508.8	509.3
17.....	508.6	508.0	507.9	507.99	508.01	507.12	507.78	507.54	510.8	509.5	508.6	509.1
18.....	508.5	508.0	507.9	507.85	508.08	507.16	507.88	507.55	511.5	509.3	508.7	509.0
19.....	508.4	508.0	507.9	507.81	508.06	507.19	507.79	507.68	511.1	508.85	508.7	509.4
20.....	508.4	508.0	507.9	507.85	508.01	507.18	507.66	507.88	511.0	508.8	508.6	509.5
21.....	508.6	508.0	507.9	507.81	508.06	507.16	507.66	508.50	511.1	508.8	508.8	509.2
22.....	508.8	508.0	507.9	508.01	508.10	507.19	507.54	508.72	511.25	508.75	509.0	509.9
23.....	508.8	508.0	507.9	508.03	508.14	507.22	507.66	508.75	511.7	508.7	509.25	508.6
24.....	508.6	508.0	507.9	508.09	508.16	507.24	507.68	508.63	511.68	508.8	508.5	508.7
25.....	508.5	508.0	507.9	507.86	508.00	507.14	507.62	508.85	513.75	508.8	507.45	510.5
26.....	508.4	507.9	507.8	507.85	508.06	507.15	507.89	509.20	511.8	508.8	507.7	509.5
27.....	508.3	507.9	507.9	507.84	507.81	507.22	507.93	509.90	511.3	508.7	509.25	511.3
28.....	508.3	507.9	507.9	507.82	507.90	507.27	507.74	513.40	511.7	508.6	509.15	510.4
29.....	508.3	507.9	507.9	507.82	507.80	507.35	507.54	.....	511.35	508.5	510.9	509.9
30.....	508.2	507.9	507.8	507.80	508.67	507.68	507.57	.....	510.95	508.5	510.95	509.5
31.....	508.2	508.0	.....	507.80	.....	508.01	507.63	.....	510.4	.....	510.45	.....

CANASERAGA CREEK

DESCRIPTION

Canaseraga creek, one of the most important tributaries to the Genesee river from the east, rises in the extreme northwestern corner of Steuben county and flows in a northwesterly direction to its junction with the Genesee river, a short distance below the village of Mount Morris.

Through its entire course the creek flows through a flat, fertile valley, devoted almost entirely to the pursuit of agriculture. From the village of Dansville to Mount Morris, the natural bed of the river originally wound back and forth across the valley. The velocity was so slow that the large amount of silt which was brought down from the foot hills by the smaller streams was deposited in the creek bed, raising it to an elevation higher, in many cases, than the surrounding country. The deposit of silt, coupled with the extreme deviation of the creek from a straight line caused the 11,000 acres, which border on the stream below Dansville, to become annually inundated by the flood waters.

During 1911 to 1915, inclusive, the channel was deepened, straightened, confined in part by levees, and the length of flow materially reduced from Cumminsville bridge, a mile north or downstream from the Dansville gaging station, to Shakers Crossing, about a mile above the junction with the Genesee river.

CANASERAGA CREEK NEAR DANSVILLE

Location.—At the highway bridge, 1 mile west of the village of Dansville, Livingston county, about 2,200 feet below the mouth of Mill brook and about 22 miles above the mouth of the creek.

Drainage area.—167 square miles. (Measured by engineers of the New York State Conservation Commission.)

Records available.—July 21, 1910, to December 31, 1912, and July 10, 1915, to June 30, 1917.

Gage.—Vertical staff, at downstream side of left abutment; datum lowered 4.77 feet on July 10, 1915. Gage read by Floyd Harter.

Discharge measurements.—Made from the bridge at high stages and by wading at low stages.

Channel and control.—Sand and gravel; frequently shifting.

Extremes of discharge.—Current year: Maximum stage recorded, 9.30 feet at 7 A. M., June 11; discharge, approximately 2,580 second-feet. Minimum stage recorded, 5.20 feet several times during October and November; discharge, approximately 15 second-feet.

1910-1917*: Maximum stage recorded, 13.0 feet at 9:30 P. M., May 16, 1916; discharge, approximately 6,600 second-feet. Minimum stage recorded, 5.2 feet several times during October and November, 1916; discharge, approximately 15 second-feet.

Ice.—Stage-discharge relation affected by ice. Gage observations suspended.

Accuracy.—Stage-discharge relation not permanent, making frequent discharge measurements necessary for computations of discharge. Stage-discharge relation affected by ice during a large portion of the period from December to March, inclusive. Gage read to half-tenths twice daily. Daily discharge ascertained by the indirect method of applying corrected mean daily gage to rating table. Results fair.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

* Not including period of no record. See "Records available."

Discharge measurements of CANASERAGA CREEK NEAR DANSVILLE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 21 a.....	C. C. Covert.....	5.76	64.6
Sept. 7 a.....	E. D. Burchard.....	5.51	34.6
Sept. 7 a.....	E. D. Burchard.....	5.51	36.1
Jan. 19 b.....	E. D. Burchard.....	6.15	44.7
Mar. 9.....	O. W. Hartwell.....	6.00	98.7
Mar. 20.....	O. W. Hartwell.....	6.88	365
Mar. 20.....	O. W. Hartwell.....	6.88	371
May 22 a.....	E. D. Burchard.....	6.38	178
May 22 a.....	E. D. Burchard.....	6.38	177
June 23 a.....	E. D. Burchard.....	6.20	112
June 23 a.....	E. D. Burchard.....	6.20	116

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily discharge, in second-feet, of CANASERAGA CREEK NEAR DANSVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	136	50	34	32	18	50			1,030	730	39	315
2.....	142	46	30	28	15	39			928	730	36	210
3.....	205	46	34	21	16	28			653	291	34	165
4.....	305	44	34	20	15	26			538	271	36	165
5.....	249	40	34	19	18	25			400	175	80	187
6.....	206	54	36	18	16	23			443	281	382	257
7.....	158	54	32	18	15	25			162	276	271	1,780
8.....	109	66	90	18	15	42			82	231	198	1,000
9.....	95	56	42	18	16	25			69	109	240	465
10.....	114	46	34	18	16	25			95	136	253	1,260
11.....	114	59	34	16	16	25			1,330	125	162	2,240
12.....	95	71	34	15	19	24			920	125	181	1,540
13.....	102	68	30	25	28	24			355	120	125	1,020
14.....	96	59	34	32	23	24			267	112	100	716
15.....	86	59	64	18	21	24			139	107	90	495
16.....	86	54	42	16	20	22			65	102	75	281
17.....	102	54	34	15	21	22			69	102	79	136
18.....	80	44	39	18	20	22			218	102	75	267
19.....	68	44	36	18	21	22			214	97	73	1,700
20.....	68	44	32	23	20	22			125	86	136	1,100
21.....	695	46	32	23	23	20			114	71	109	590
22.....	1,040	42	75	21	30	20			90	65	158	206
23.....	438	44	42	20	42	20			597	60	168	86
24.....	136	42	34	21	102	20			1,140	56	206	1,380
25.....	102	39	32	20	128	20			558	68	179	438
26.....	86	36	32	20	54	20			372	125	191	410
27.....	136	44	34	18	36	24			432	66	223	1,180
28.....	120	44	34	16	68	26			366	58	253	525
29.....	80	44	42	16	71	28			460	45	231	410
30.....	68	36	36	15	59	24			286	43	912	236
31.....	59	34		15		22			149		674	
Mean...	183	48.5	39.6	19.7	32.7	25.3			410	166	191	692

NOTE.—Daily discharge, December 12 to 31, inclusive, estimated, because of ice, from one discharge measurement, weather records and study of gage-height graph. Daily discharge, March 1 to June 30, computed by special method, owing to shifting channel conditions. Record for January and February discontinued because of ice conditions.

Monthly discharge of CANASERAGA CREEK NEAR DANSVILLE, for the year ended June 30, 1917

[Drainage area, 167 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,040	59	183	1.10	1.27
August.....	71	34	48.5	0.290	0.33
September.....	90	32	39.6	0.237	0.26
October.....	32	15	19.7	0.118	0.14
November.....	128	15	32.7	0.196	0.22
December.....	50	20	25.3	0.151	0.17
January.....					
February.....					
March.....	1,330	65	410	2.45	2.82
April.....	730	43	166	0.994	1.11
May.....	912	34	191	1.14	1.31
June.....	2,240	86	692	4.14	4.62

CANASERAGA CREEK AT GROVELAND STATION

Location.—At the highway bridge at Groveland station, Livingston county. The creek is flowing through the improved channel at this point.

Drainage area.—195 square miles. (Measured by engineers of the New York State Conservation Commission.)

Records available.—August 5, 1915, to June 30, 1917.

Gage.—Chain, near center of downstream side of bridge. Prior to March 30, 1916, inclined staff gage on right bank about 400 feet above the bridge, at practically the same datum, 560.00 (Conservation Commission datum). Gage read by E. R. Stoner, L. J. Dagon and Thomas Maimone.

Discharge measurements.—Made from highway bridge at medium and high stages and by wading at low stages.

Channel and control.—Gravel; likely to shift.

Extremes of stage.—Current year: Maximum stage recorded, 15.8 feet at 6 P. M., July 21, 1916. Minimum stage recorded, 6.5 feet from 6 P. M., September 21, to 6 P. M., September 22.

1915–1917: Maximum stage recorded, 16.0 feet at 7:30 P. M., May 16, 1916, and 6:25 A. M., June 17, 1916. Minimum stage recorded, 6.5 feet from 6 P. M., September 21, to 6 P. M., September 22, 1916.

Ice.—Stage-discharge relation affected by ice. Gage observations suspended.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge not computed on account of uncertainty concerning backwater at high stages.

Discharge measurements of CANASERAGA CREEK AT GROVELAND STATION, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 20 a.....	E. D. Burchard.....	6.99	70.2
Sept. 6 a.....	E. D. Burchard.....	6.54	38.8
Mar. 29.....	O. W. Hartwall.....	9.16	432
May 19 a.....	E. D. Burchard.....	7.16	89.3
May 19 a.....	E. D. Burchard.....	7.15	90.8
June 21.....	E. D. Burchard.....	8.40	276

a Measurement made by wading.

Daily gage height, in feet, of CANASERAGA CREEK AT GROVELAND STATION, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	7.7	7.05	6.65	.....	.....	.....	.....	.....	10.4	10.4	.....	8.1
2.....	7.7	7.0	6.6	.....	.....	.....	.....	.....	9.6	9.8	.....	8.0
3.....	8.2	7.0	6.6	.....	.....	.....	.....	.....	9.2	9.3	.....	7.7
4.....	8.3	7.0	6.6	.....	.....	.....	.....	.....	9.1	8.4	.....	7.5
5.....	7.8	6.9	6.6	.....	.....	.....	.....	.....	8.8	8.1	.....	7.5
6.....	7.7	6.9	6.6	.....	.....	.....	.....	.....	.....	8.6	.....	7.8
7.....	7.6	6.9	6.6	.....	.....	.....	.....	.....	.....	.....	.....	12.4
8.....	7.5	6.85	7.1	.....	.....	.....	.....	.....	9.2	.....	.....	9.6
9.....	7.4	6.8	6.9	.....	.....	.....	.....	.....	9.0	.....	.....	9.0
10.....	7.4	6.8	6.8	.....	.....	.....	.....	.....	8.7	8.0	.....	13.5
11.....	7.35	6.9	6.7	.....	.....	.....	.....	.....	12.2	8.0	.....	10.5
12.....	7.3	7.0	6.7	.....	.....	.....	.....	.....	12.5	8.6	.....	9.0
13.....	7.4	7.0	6.6	.....	.....	.....	.....	.....	9.3	8.3	.....	8.3
14.....	7.4	6.95	6.6	.....	.....	.....	.....	.....	9.0	7.9	.....	7.9
15.....	7.3	6.90	6.8	.....	.....	.....	.....	.....	8.6	7.7	.....	7.3
16.....	7.2	6.9	6.8	.....	.....	.....	.....	.....	8.0	7.6	.....	7.6
17.....	7.2	6.85	6.7	.....	.....	.....	.....	.....	8.8	7.5	.....	7.4
18.....	7.15	6.85	6.7	.....	.....	.....	.....	.....	8.6	7.45	.....	7.4
19.....	7.1	6.8	6.65	.....	.....	.....	.....	.....	8.0	7.4	7.15	10.2
20.....	7.1	6.8	6.6	.....	.....	.....	.....	.....	8.0	7.25	7.6	8.2
21.....	11.4	6.75	6.55	.....	.....	.....	.....	.....	8.7	7.4	7.6	8.3
22.....	8.3	6.7	6.5	.....	.....	.....	.....	.....	8.4	7.3	7.7	7.7
23.....	7.6	6.7	6.6	.....	.....	.....	.....	.....	8.9	7.3	8.1	7.5
24.....	7.45	6.75	6.6	.....	.....	.....	.....	.....	11.8	7.3	7.9	10.3
25.....	7.4	6.7	6.55	.....	.....	.....	.....	.....	9.3	7.15	8.0	8.7
26.....	7.3	6.7	6.55	.....	.....	.....	.....	.....	9.2	7.2	7.7	8.2
27.....	7.3	6.7	6.6	.....	.....	.....	.....	.....	9.6	7.25	8.3	8.4
28.....	7.3	6.7	6.6	.....	.....	.....	.....	.....	9.6	7.2	9.9	8.8
29.....	7.2	6.75	6.6	.....	.....	.....	.....	.....	9.0	7.1	10.0	8.5
30.....	7.15	6.7	6.6	.....	.....	.....	.....	.....	8.6	7.1	8.9	8.1
31.....	7.05	6.7	.....	.....	.....	.....	.....	.....	8.4	.....	8.7	.....

NOTE.—No observations, October 1 to February 28, inclusive. Observer resigned April 30. New observer appointed and commenced observations May 19.

CANASERAGA CREEK AT SHAKERS CROSSING, NEAR MOUNT MORRIS

Location.—At highway bridge at Shakers Crossing, about 1 mile above mouth and $1\frac{1}{2}$ miles northeast of Mount Morris, Livingston county.

Drainage area.—347 square miles. (Measured by engineers of the New York State Conservation Commission.)

Records available.—Discharge measurements, 1904–1915; continuous record of gage height and occasional discharge measurements, July 13, 1915, to June 30, 1917.

Gage.—Gurley 7-day water-stage recorder, on the left bank, just below the bridge. Datum of gage same as that for gage established on Genesee river at Jones bridge near Mount Morris,

July 12, 1915, 540.00 feet (Conservation Commission datum). Recorder inspected by Mrs. Wm. Russell.

Discharge measurements.—Made from the highway bridge during medium and high stages and by wading during low stages.

Channel and control.—Firm gravel; not likely to shift; subject to backwater from Genesee river.

Extremes of stage.—Current year: Maximum stage from water-stage recorder, 25.10 feet at 4 P. M., March 12. Minimum stage from water-stage recorder, 7.95 feet at 11 P. M., October 30.

1915–1917: Maximum stage from water-stage recorder, 28.92 feet at 1 P. M., May 17, 1916. Minimum stage from water-stage recorder, 7.95 feet at 11 P. M., October 30, 1916.

Ice.—Stage-discharge relation affected by ice.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Stage-discharge relation is affected by the stage in the Genesee river to such an extent that discharge computations have not been made.

Discharge measurements of CANASERAGA CREEK AT SHAKERS CROSSING, NEAR MOUNT MORRIS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 6 a.....	E. D. Burchard.....	8.45	114
Sept. 6 c.....	E. D. Burchard.....	8.43	109
Oct. 28 a.....	E. D. Burchard.....	7.99	47.5
Oct. 28 c.....	E. D. Burchard.....	7.99	49.3
Jan. 18 b.....	E. D. Burchard.....	9.55	223
Mar. 8 c.....	O. W. Hartwell.....	11.22	367
Mar. 28.....	O. W. Hartwell.....	14.11	913
May 21.....	E. D. Burchard.....	9.63	360

a Measurement made by wading.

b Measurement made through complete ice cover.

c Measurement made through partial ice cover.

Daily gage height, in feet, of CANASERAGA CREEK AT SHAKERS CROSSING, NEAR MOUNT MORRIS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	9.5	8.78	8.18	8.25	8.06	9.29	8.91	10.72	17.65	13.81	9.03	10.34
2.....	9.31	8.74	8.56	8.12	8.40	9.00	9.03	10.47	14.22	14.64	8.99	10.57
3.....	10.36	8.61	8.34	8.22	8.73	8.67	9.01	9.94	12.44	14.02	9.02	9.74
4.....	10.12	8.60	8.22	8.19	8.70	8.79	9.11	9.69	11.62	11.61	8.98	9.56
5.....	9.7	8.58	8.26	8.22	8.35	8.80	9.50	9.67	11.52	10.58	9.71	9.25
6.....	9.78	8.55	8.28	8.20	8.70	8.68	15.34	9.61	11.08	11.48	10.83	9.79
7.....	9.46	8.58	8.34	8.24	8.72	8.65	12.50	9.55	11.16	12.64	11.81	17.40
8.....	9.25	8.60	8.63	8.27	8.67	8.68	10.09	9.55	11.18	11.83	10.93	16.13
9.....	9.21	8.56	8.91	8.15	8.66	8.69	9.58	9.60	11.37	11.19	10.15	12.48
10.....	9.3	8.60	8.60	8.33	8.73	8.51	9.38	9.59	11.02	10.27	10.51	12.53
11.....	9.18	8.56	8.57	8.35	8.66	8.63	9.17	9.62	13.55	10.04	9.92	15.01
12.....	9.26	8.62	8.54	8.25	8.47	8.67	9.35	9.58	23.60	10.57	9.58	12.34
13.....	9.25	8.48	8.44	8.27	8.70	8.63	9.38	.....	22.47	10.28	9.26	10.65
14.....	9.44	8.68	8.45	8.60	8.89	8.65	9.41	.....	17.76	9.80	9.31	9.92
15.....	9.15	8.65	8.50	8.69	8.92	8.89	9.49	.....	14.66	9.27	9.22	9.44
16.....	8.85	8.58	8.29	8.74	8.87	8.91	9.48	.....	11.18	9.49	9.15	9.38
17.....	8.92	8.60	8.50	8.71	8.80	8.50	9.46	9.69	11.79	9.41	9.13	9.18
18.....	8.91	8.60	8.50	8.62	8.81	8.73	9.47	9.94	12.71	9.22	9.10	9.25
19.....	8.90	8.64	8.48	8.56	8.55	8.80	9.48	10.17	10.50	9.33	9.10	11.66
20.....	8.84	8.44	8.41	8.88	8.72	8.78	9.55	10.29	10.14	9.31	9.15	10.26
21.....	9.60	8.52	8.39	9.04	8.84	8.73	9.49	10.10	12.05	9.24	9.48	10.13
22.....	10.65	8.42	8.41	8.83	8.78	8.80	9.54	10.09	11.52	8.85	9.60	9.54
23.....	9.28	8.38	8.39	8.43	8.75	8.88	9.66	10.10	12.93	9.11	10.00	9.27
24.....	9.20	8.32	8.35	8.06	9.05	8.57	9.70	10.23	17.82	9.19	9.92	12.50
25.....	9.08	8.32	8.31	8.03	9.24	8.67	9.70	10.48	15.82	9.08	10.10	11.30
26.....	9.01	8.43	8.44	8.01	8.76	8.84	9.55	11.34	13.33	9.11	9.66	10.50
27.....	8.98	8.31	8.32	8.01	8.95	8.88	9.44	17.83	13.50	9.03	9.35	13.52
28.....	.....	8.58	8.24	8.00	8.95	9.00	9.39	21.11	14.41	9.05	11.22	.....
29.....	.....	8.50	8.24	8.00	9.45	9.40	9.44	.....	12.83	8.51	13.80	.....
30.....	8.85	8.49	8.21	7.98	10.03	9.27	9.73	.....	12.05	9.04	12.36	.....
31.....	8.86	8.15	.....	8.00	.....	8.80	10.20	.....	11.21	.....	10.72	.....

NOTE.— Intake to float-well stopped by silt, June 28 to 30, inclusive.

KESHEQUA CREEK

DESCRIPTION

Keshequa creek, the principal tributary to Canaseraga creek, has its source among the hills of northern Allegany county and flows north and northeast through Nunda and Tuscarora, joining Canaseraga creek near Sonyea, the home of the Craig Colony for Epileptics. Throughout its length of some 20 miles it flows through a narrow valley and falls about 1,200 feet. No power is developed, as the flow during the summer averages only 3 to 6 second-feet. The yearly rainfall is a little above the average for the Genesee valley and ranges from 28 to 36 inches.

KESHEQUA CREEK NEAR SONYEA

Location.—About 400 feet above the Delaware, Lackawanna and Western railroad bridge and half a mile below gaging station formerly maintained at Sonyea, Livingston county.

Drainage area.—74 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—July 22, 1910, to December 31, 1912, at former station at Sonyea; August 29, 1915, to June 30, 1917, at present station.

Gage.—Staff, in two sections; inclined section graduated from 3.0 to 6.0 feet; vertical section graduated from 6.0 to 17.0 feet. Gage read by Fred Mott.

Discharge measurements.—Made from foot-bridge at gage at high stages and by wading at low stages.

Channel and control.—Gravel; probably fairly permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 9.3 feet at 7 A. M., June 7; discharge, 967 second-feet. Minimum stage recorded, 3.8 feet several times during October; discharge, practically zero.

1915–1917: Maximum stage recorded, 13.15 feet at 7 A. M., March 28, 1916; discharge, not determined. Minimum stage recorded, 3.8 feet several times during October, 1916; discharge, practically zero.

Ice.—Stage-discharge relation affected by ice. Gage observations suspended.

Accuracy.—Stage-discharge relation probably permanent; affected by ice during large part of the period from December to March, inclusive. Rating curve well defined between 1 and 350 second-feet and fairly well defined between 350 and 1,300 second-feet. Gage read to half-tenths twice daily. Daily discharge determined by applying mean daily gage height to rating table. Results fairly good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of KESHEQUA CREEK NEAR SONTYA, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 20 a.....	E. D. Burchard.....	4.20	8.60
July 20 a.....	E. D. Burchard.....	4.20	8.78
Sept. 6 a.....	E. D. Burchard.....	4.01	1.64
Sept. 6 a.....	E. D. Burchard.....	4.01	1.80
Jan. 18 b.....	E. D. Burchard.....	4.60	14.2
Mar. 9.....	O. W. Hartwell.....	4.89	65.8
Mar. 30.....	O. W. Hartwell.....	5.15	90.4
Mar. 30.....	O. W. Hartwell.....	5.12	88.7
May 25 a.....	E. D. Burchard.....	4.95	62.2
May 25.....	E. D. Burchard.....	4.95	61.6
June 21.....	E. D. Burchard.....	4.80	53.0
June 21.....	E. D. Burchard.....	4.79	51.8

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily discharge, in second-feet, of KESHEQUA CREEK NEAR SONTYA, for the year
ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	22	10	1.5	3.0	1.5	8.7	16.....	8.7	5.3	5.3	.0	4.5	10
2.....	24	8.7	1.5	1.5	1.5	14	17.....	12	4.5	4.5	.0	3.9	14
3.....	21	10.0	1.5	1.5	1.5	14	18.....	8.7	3.0	5.3	.0	3.0	12
4.....	16	8.7	1.5	1.5	1.5	14	19.....	10	3.0	3.0	.0	5.3	8.7
5.....	24	8.7	1.5	1.5	3.0	15	20.....	8.7	1.5	1.5	.2	4.5	10
6.....	24	6.6	1.5	.0	4.5	15	21.....	10	2.1	2.1	.0	5.3	8.7
7.....	24	4.5	2.1	.0	5.3	15	22.....	8.7	1.5	3.9	.8	4.5	8.7
8.....	15	5.3	7.9	.0	4.5	15	23.....	16	1.5	4.5	1.5	4.5	12
9.....	22	3.9	24	.0	5.3	15	24.....	8.7	1.5	4.5	1.5	5.3	14
10.....	16	2.1	21	.0	4.5	15	25.....	8.7	1.5	2.1	1.5	7.0	16
11.....	15	3.0	16	.0	4.5	14	26.....	8.7	1.5	2.1	1.5	10	16
12.....	15	3.0	15	.0	6.6	15	27.....	8.7	1.5	1.5	1.5	10	16
13.....	15	5.3	14	.0	4.5	15	28.....	10	1.5	1.5	1.5	8.7	21
14.....	8.7	5.3	10	.8	5.3	12	29.....	8.7	1.5	1.5	3.0	10	30
15.....	10	4.5	7.9	.0	4.5	10	30.....	8.7	1.5	1.5	1.5	12	30
							31.....	12	1.5	.....	1.5	.....	28
							Mean...	13.8	4.0	5.7	.832	5.26	14.9

NOTE.—Gage heights, January to June, inclusive, not considered reliable; discharge not computed.

Monthly discharge of KESHEQUA CREEK NEAR SONTA, for the year ended June 30, 1917

[Drainage area, 74 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches or drainage area
July.....	24	8.7	13.8	0.186	0.21
August.....	10	1.5	4.0	0.054	0.06
September.....	24	1.5	5.7	0.077	0.09
October.....	30	0.0	0.832	0.011	0.013
November.....	12	1.5	5.26	0.071	0.079
December.....	30	8.7	14.9	0.201	0.232

BLACK CREEK, MONROE COUNTY

DESCRIPTION

Black creek rises in the extreme northern part of Wyoming county in the hilly region to the south of Batavia, flows in a general northerly direction to a point just north of the village of Byron, then turns to the east and enters the Genesee river at Genesee Junction. The slope of the creek is gradual for the greater part of its course, there being but one sharp descent, near the village of Morganville, where it has a drop of about 140 feet in less than half a mile. The surrounding country is slightly rolling with some swamps and but few small ponds or lakes. The stream has numerous small tributaries, the principal one being Spring creek, which enters Black creek a short distance below the village of Byron.

BLACK CREEK NEAR GENESEE JUNCTION

This station, established May 14, 1917, is located on Black creek, about $\frac{1}{2}$ mile above its junction with Genesee river. The gage, No. 228, is a standard Type A gage, having a range of 20 feet between elevations 508.0 and 528.0 (B. C. datum). It is secured to the upstream end of the center pier of the old Genesee Valley canal aqueduct over Black creek. The gage is read once daily to half-tenths.

Daily elevation of water-surface (B. C. datum) of BLACK CREEK AT OLD CANAL AQUEDUCT AT GENESEE JUNCTION, for the year ended June 30, 1917. J. Horton Begy, Observer.

DAY	June	DAY	June	DAY	June
1.....	11.....	517.0	21.....	510.7
2.....	12.....	516.5	22.....	510.2
3.....	13.....	514.65	23.....	509.75
4.....	14.....	513.35	24.....	510.2
5.....	15.....	512.25	25.....	510.65
6.....	16.....	511.4	26.....	511.15
7.....	17.....	510.85	27.....	513.95
8.....	18.....	510.45	28.....	512.9
9.....	19.....	510.7	29.....	512.05
10.....	20.....	511.15	30.....	512.0

CANADICE LAKE

DESCRIPTION

Canadice lake is tributary to Genesee river through Hemlock lake outlet and Honeoye creek. The area drained by the lake forms an irregular rectangle, the lake lying somewhat to the left of the longitudinal axis and the greater portion of the drainage being on the eastern slope. The western slope is narrow and precipitous. Bald hill rises from an altitude of 1,090 feet at the lake to 1,800 feet at the summit and has its axis parallel to the lake at an average distance of three-fourths of a mile from it. The lake has a water-surface area of 1.01 square miles and drains a total area of 12.6 square miles, 8 per cent of which is lake surface.

A weir was constructed at the outlet at the foot of the lake by the city engineer's department of Rochester, N. Y., in February, 1903. The entire yield of the drainage basin passes this weir.

CANADICE LAKE OUTLET NEAR HEMLOCK

Location.—In outlet, at foot of lake, which discharges to Genesee river through Hemlock lake outlet and Honeoye creek.

Drainage area.—12.6 square miles, of which 1.01 square miles are lake surface.

Records available.—April, 1903, to date. Data also in water-supply paper, Surface Water-Supply of the United States, Part IV; St. Lawrence River Basin, published by the United States Geological Survey; also in reports of the city engineer of Rochester, N. Y.

Gage.—Hook gage, in channel above weir.

Computation of discharge.—In November, 1915, the former timber and plank channel with an overfall weir about fifteen feet long, which could be shortened to five feet, was replaced by a concrete construction with an overfall weir at the same elevation with a crest ten feet long with end contraction suppressed, said weir also being capable of being reduced by vertical needles to a five-foot weir with complete end contractions.

Diversions.—No water is diverted from Canadice lake above the station.

Regulation.—Outflow of lake at dam above weir is controlled by bulkhead and gates.

Ice.—Pool above weir is free from ice throughout winter.

Accuracy.—Observations and computations made with care; the result should be very good.

Coöperation.—Data collected and furnished for publication by office of city engineer, Rochester, N. Y.

Mean monthly water-surface and monthly discharge of CANADICE LAKE NEAR HEMLOCK, for the year ended June 30, 1917
[Drainage area 12.6 square miles]

MONTH	Mean elevation of lake above low-water mark	DISCHARGE IN SECOND- FEET		RUN-OFF Depth in inches on drainage area*
		Mean	Per square mile*	
July.....	2.475	6.602	0.531	0.612
August.....	2.030	5.340	0.424	0.489
September.....	1.481	0.920	0.073	0.081
October.....	1.328	0.093	0.008	0.009
November.....	1.269	2.085	0.165	0.184
December.....	0.946	3.634	0.288	0.332
January.....	0.965	3.684	0.292	0.337
February.....	1.032	3.934	0.312	0.325
March.....	2.144	16.289	1.293	1.491
April.....	2.028	25.572	2.030	2.265
May.....	2.211	13.170	1.045	1.205
June.....	2.287	20.166	1.600	1.785
The year.....	1.683	8.461	0.671	9.115

* Computed by State Engineer.

NOTE.—As the outlet of the lake is controlled by gates, it is fair to state that the terminal water-surface for the year ended June 30, 1917, was 0.23 feet higher than the year before, corresponding to a gain in storage of 6,896,862 cubic feet, or a discharge of 0.219 cubic feet per second. This correction applied to the above mean for the year gives 8.680 cubic feet per second, equivalent to a discharge of 0.689 second-feet per square mile of drainage area, or a depth of run-off of 9.353 inches on the drainage area.

OSWEGO-ONEIDA-SENECA RIVER DRAINAGE BASIN**DESCRIPTION OF BASIN**

Oswego river is formed by the union of Seneca and Oneida rivers at Three River Point about twelve miles northwest of Syracuse, N. Y., whence its course is northwestward to Oswego, where it enters Lake Ontario. The length of the river, from the junction to the mouth, is about 20.5 miles and the drainage basin along this distance is a narrow strip of country, moderately rolling. Above the junction of Seneca and Oneida rivers the basin spreads out, attaining an extreme width east and west of about 100 miles and north and south of from 70 to 80 miles. There is, on the whole, a gradual rise from the low, level lands which border Lake Ontario to the north-south ridges which separate the various lakes south of Seneca river and which farther south become merged with the still more elevated country lying along the southern boundary of the Lake Ontario watershed.

The most remarkable feature of the drainage basin is the chain of lakes stretching across its southern border. From west to east the principal lakes are, in order, Canandaigua, Keuka, Seneca, Cayuga, Owasco, Skaneateles and Oneida. These seven lakes include a water-surface of approximately 270 square miles, increased by four smaller lakes — Cross, Onondaga, Otisco and Cazenovia — to about 283 square miles. The larger of the lakes, Oneida, Cayuga and Seneca, are used for steam-towing navigation, having connection with the Erie and Oswego canals, and together with Onondaga will form a part of the New Barge canal system. Cayuga and Seneca lakes are noted for their depth and for the abrupt slopes of their beds. The influence of the lakes on Oswego river is of the utmost importance in contributing to the steadiness of its flow.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 63

Drainage areas tributary to ONEIDA LAKE AND ONEIDA RIVER *

LOCALITY	AREA IN SQUARE MILES		
	Place to place	Sub-total	Total
East branch, Fish creek.			
Head to junction with Alder creek	45.40	45.40	
Alder creek	25.70	71.10	
Junction with Alder creek to junction with Point Rock creek	36.70	107.80	
Point Rock creek	19.90	127.70	
Junction with Point Rock creek to junction with Fall brook	4.50	132.20	
Fall brook	13.50	145.70	
Junction with Fall brook to junction with Florence creek	1.30	147.00	
Florence creek	20.40	167.40	
Junction with Florence creek to junction with Furnace creek (Taberg)	1.70	169.10	
Furnace creek	14.40	183.50	
Taberg to junction with West branch, Fish creek	3.60	187.10	
West branch, Fish creek.			
Head to lower dam, Williamstown	25.80	25.80	
Williamstown to West Camden	27.10	52.90	
West Camden to junction with Mad river, Camden	14.20	67.10	
Mad river	45.40	112.50	
Camden to junction with Little river	21.60	134.10	
Little river	52.10	186.20	
Little river to McConnellsville	4.00	190.20	
McConnellsville to junction with East branch, Fish creek	11.90	202.10	
Total, East and West branches, Fish creek		389.20	
Junction of East and West branches, Fish creek, to junction with Wood creek	27.80	417.00	417.00
Wood creek (Oneida county).			
Above Erie canal, Rome	10.20	10.20	
Erie canal, Rome, to junction with Mud creek	2.00	12.20	
Mud creek (Oneida county)	20.00	32.20	
Junction with Mud creek to junction with Canada creek	6.40	38.60	
Canada creek	31.00	69.60	
Junction with Canada creek to junction with Stony creek	1.20	70.80	
Stony creek	20.40	91.20	
Junction with Stony creek to junction with Fish creek	31.40	122.60	122.60
Oneida creek.			
Head to Peterboro	13.40	13.40	
Peterboro to Falls	6.70	20.10	
Falls to Munnsville	15.60	35.70	
Munnsville to Kenwood	27.30	63.00	
Kenwood to Oneida Castle (State dam)	10.80	73.80	
Oneida Castle to Soonondoa creek, Oneida	2.10	75.90	
Soonondoa creek	34.30	110.20	
Soonondoa creek to Durhamville	4.80	115.00	
Durhamville to mouth	28.00	143.00	143.00
Canaseraga creek (Madison county).			
Head to Perryville	5.70	5.70	
Perryville to Erie canal	9.00	14.70	
Erie canal to Douglas ditch	8.10	22.80	
Cowaselon creek.			
Head to Clockville creek	17.20	17.20	
Clockville creek	11.10	28.30	
Clockville creek to Erie canal	5.50	33.80	
Erie canal to mouth of Douglas ditch	39.30	73.10	
Total, all above junction with Douglas ditch		95.90	
Junction with Douglas ditch to Lakeport	3.20	99.10	99.10
Chittenango creek.			
Erieville reservoir, water-surface	0.45	0.45	
Erieville reservoir, land drainage	3.30	3.75	
Erieville reservoir to Casenovia lake	30.60	34.25	
Casenovia lake, water-surface	1.70	35.95	
Casenovia lake, land drainage	8.70	44.65	
Casenovia lake to Chittenango falls	14.40	59.05	
Chittenango falls to State dam, Chittenango	17.90	76.95	
State dam to junction with Butternut creek	28.10	105.05	
Butternut creek.			
Head to Jamesville reservoir	47.40	47.40	
Jamesville reservoir to State dam	5.70	53.10	
State dam to junction with Limestone creek	19.20	72.30	

* From U. S. Geological Survey topographic maps.

Drainage areas tributary to ONEIDA LAKE AND ONEIDA RIVER *—Continued

LOCALITY	AREA IN SQUARE MILES		
	Place to place	Sub-total	Total
Chittenango creek — Continued.			
Butternut creek — Continued.			
Limestone creek			
De Ruyter reservoir, water-surface	1.00	1.00	
De Ruyter reservoir, land drainage	17.80	18.80	
De Ruyter reservoir, to junction with East branch	4.30	23.10	
East, or New Woodstock branch	12.60	35.70	
Junction with East branch to junction with West branch	34.50	70.20	
West branch, Limestone creek, enters above State feeder dam	24.80	95.00	
State dam to junction with Butternut creek	18.20	113.20	
Total, Butternut and Limestone creeks, above junction		185.50	
Junction with Limestone creek to Chittenango creek	1.10	186.60	
Total, Chittenango and Butternut creeks, above junction		291.65	
Junction with Butternut creek to Bridgeport	80.30	321.95	
Bridgeport to Oneida lake	4.30	326.25	326.25
Oneida lake drainage through main streams		1,107.95	
Big Pay creek	20.30		
Little Bay creek	11.60		
Scriba creek	45.40		
Coast drainage, north shore Oneida lake	54.50		
Coast drainage, south shore Oneida lake	28.90	166.60	1,274.55
Water-surface, Oneida lake	78.00		
Land drainage, Oneida lake	1,274.55	1,352.55	
Oneida river			
Brewerton to Caughdenoy creek	4.80	4.80	1,357.35
Caughdenoy creek	19.30	24.10	1,376.65
Caughdenoy creek to Oak Orchard	25.10	49.20	1,401.75
Mud creek (Onondaga county)	34.70	83.90	1,436.45
Oak Orchard to Potts creek	5.00	88.90	1,441.45
Potts creek	22.90	111.80	1,464.35
Six-Mile creek (Oswego county)	24.00	135.80	1,488.35
Potts creek to Three River Point	4.50	140.30	1,492.85

Drainage areas tributary to SENECA RIVER *

LOCALITY	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	General total
Mud creek (Ontario county).				
Head to and including Schaffer creek	51.31			
Junction with Schaffer creek to junction with Sucker brook, Victor (formerly Ganargua creek)	25.70	77.01		
Sucker brook	20.15	97.16		
Ganargua creek				
Victor to Erie canal, Macedon	26.20	123.36		
Macedon to junction with East Red creek, East Palmyra	55.00	178.36		
East Red creek	59.50	237.86		
East Red creek to Canandaigua outlet	61.37	299.23	299.23	
Canandaigua lake				
Naples creek	48.55	171.97		
West river	42.08			
Other land drainage	81.34			
Water-surface	16.40		188.37	

* From U. S. Geological Survey topographic maps.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 65

Drainage areas tributary to SENECA RIVER — Continued

LOCALITY	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	General total
Canandaigua outlet.				
Foot of the lake to and including Black brook..	50.37	238.74		
Black brook to Flint creek, at Phelps	54.34	293.08	293.08	
Flint creek.				
Above Patten.	31.59			
Patten to Gorham, not including Gorham swamp.	24.84	56.43		
Gorham swamp.	5.46	61.89		
Gorham to Orleans.	25.57	87.46		
Orleans to junction with Canandaigua outlet at Phelps.	15.21	102.67	395.75	
Phelps to junction with Ganargua creek at Lyons, forming Clyde river.	48.36	444.11	743.34	
Clyde river.				
Lyons to junction with Seneca river, foot of Cayuga lake.	141.11	884.45		884.45
Seneca river.				
Seneca lake.				
Keuka lake.				
Land drainage to outlet.	160.96			
Water-surface.	17.51	178.47		
Keuka outlet to Seneca lake.	24.80	203.27		
Catharine creek.				
Above Montour Falls.	66.46		640.93	
Montour Falls to Seneca lake.	29.91	96.37		
Glen creek.	23.53	23.53		
Direct lake drainage.	317.76	317.76		
Water-surface.	67.16		708.09	
Seneca river, foot of Seneca lake to Waterloo.	40.90		748.99	
Seneca river, Waterloo to Seneca Falls.	28.55		777.64	
Seneca river, Seneca Falls to Mud lock, foot of Cayuga lake.	7.52		785.00	
Cayuga lake.				
Cascadilla creek.	14.38			
Six-Mile creek.	59.05			
Buttermilk creek.	29.16			
Cayuga inlet.	67.02			
Salmon creek.	91.13			
Fall creek.				
Above Freeville.	58.68			
Virgil creek.	26.00	84.68		
Freeville to Cornell dam.	30.62	115.30		
Cornell dam to Cayuga lake.	1.56	116.86		
Taghanic creek.				
Above Halseyville.	56.06			
Halseyville to Taghanic Falls.	10.40	67.36		
Taghanic Falls to Cayuga lake.	0.39	67.75		
Other Cayuga lake drainage.	275.04	720.39		
Cayuga lake, water-surface.	66.31	786.70	1,571.76	
Seneca river, Cayuga lake to junction with Clyde river.	15.42		1,587.18	2,471.63
Seneca river, junction with Clyde river to junction with Owaseo outlet.	146.23			2,617.86
Owaseo lake.				
Owaseo inlet, above Moravia.	74.33			
Moravia to Owaseo lake.	42.92	117.25		
Direct drainage to lake.	76.24	193.49		
Foot of lake to State dam.	0.98	194.47		
Water-surface.	10.40	204.87		
Owaseo outlet to junction with Seneca river.	16.73	221.60		2,839.16
Seneca river, junction with Owaseo outlet to junction with Skaneateles outlet.	98.70			2,938.16
Skaneateles lake.				
Land drainage to foot.	58.41			
Water-surface.	14.13	72.54		
Foot of lake to Willow Glen.	1.84	74.38		
Willow Glen to Seneca river.	16.69	91.07		3,029.23
Seneca river, Skaneateles outlet to Carpenter brook.	25.50			3,054.73

Drainage areas tributary to SENECA RIVER — *Concluded*

LOCALITY	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	General total
<i>Seneca River — Continued.</i>				
Carpenter brook	18.70	.....	.....	3,073.43
Seneca river, Carpenter brook to Baldwinsville..	48.10	.....	.....	3,121.53
Seneca river, Baldwinsville to Onondaga outlet..	17.80	.....	.....	3,139.33
Onondaga lake.				
Otisco lake, land drainage to foot	41.40			
Otisco lake, water-surface	3.30	44.70		
Nine-Mile creek, Onondaga county (Otisco outlet), to Onondaga lake	74.00	118.70		
Onondaga creek.				
Above junction with West brook	40.60			
Junction with West brook to inflow to Onondaga lake	65.30	105.90		
Other land drainage to Onondaga lake	59.10	283.70		
Onondaga lake, water surface	4.70	238.40		
Onondaga outlet, lake to Seneca river	3.00	291.40		3,430.73
Seneca river, Onondaga outlet to Belgium	10.12	.....	.....	3,440.85
Seneca river, Belgium to Three River Point....	4.40	.....	.....	3,445.24

Drainage areas tributary to OSWEGO RIVER *

LOCALITY	AREA IN SQUARE MILES		
	Place to place	Total from Three River Point	Total drainage basin
Oneida river, above Three River Point .....	.....	.....	1,492.85
Seneca river, above Three River Point .....	.....	.....	3,445.24
Oswego river, at Three River Point .....	.....	.....	4,938.09
Three River Point to Phoenix	2.32	2.32	4,940.41
Phoenix to Hinmansville	17.58	19.90	4,957.99
Hinmansville to Ox creek	17.05	36.95	4,975.01
Ox creek	33.68	70.63	5,008.72
Ox creek to upper dam, Fulton	9.15	79.78	5,018.87
Fulton to Neatahwanta creek	9.15	88.93	5,027.02
Neatahwanta creek	21.92	110.85	5,043.94
Neatahwanta creek to Black creek	1.01	111.86	5,049.95
Black creek	37.93	149.79	5,087.88
Black creek to Battle Island	0.92	150.71	5,088.80
Battle Island to Minetto	2.11	152.82	5,090.91
Minetto to High dam	4.87	157.69	5,095.78
High dam to Oswego dam	1.22	158.91	5,097.00
Oswego dam to Lake Ontario	1.21	160.12	5,098.21

* From U. S. Geological Survey topographic maps.

OSWEGO RIVER

DESCRIPTION

The drainage area tributary to Oswego river, exclusive of Seneca and Oneida rivers, is 160 square miles. This area comprises chiefly moderately-rolling, cultivated upland, having a good depth of soil overlying the rock, which, as a rule, is visible only in the bed of the stream. A portion of the area is drained through lakes and marshes. The run-off from the direct drainage to Oswego river is moderate and the regimen differs but little from that resulting from the inflow of the two main tributaries — the Oneida and Seneca.

The river is canalized for practically its entire length by the Barge canal improvement and almost all of the 118.6 feet drop between canal pool at Three River Point and low water in Lake Ontario occurs at six dams, all having bulkhead gates for power purposes, the upper two of which have large Taintor gates for surface regulation. The Battle Island dam and old High dam have been drowned out by new structures — dam No. 5 at Minetto and dam No. 6 (new High dam) above Oswego, respectively.

In the following series of tables there are given records of the daily elevation of water-surface of the Oswego river at different gaging stations for the year ended June 30, 1917. Owing to the completion of the canal construction the locations at which certain water-surface elevations were taken have been shifted, in general being located on the finished structures. Locations of old and new gages and reasons for change are briefly noted.

The tables of elevations of water-surface are arranged in order, proceeding downstream from Three River Point to Lake Ontario. The water-surface is in general read to the nearest tenth of a foot, usually either on a staff gage or by measuring down from a reference point.

OSWEGO RIVER ABOVE DAM AT PHOENIX

Records published previous to 1914 as "above dam at Phoenix" are of "East line gage," located on the east side of the river, March 1, 1912, to May 5, 1913, between 200 and 250 feet above east bulkhead, and May 6, 1913, to December 31, 1914, at the shore end of east bulkhead. This gage was discontinued and the

record is taken at the upper end of the guide-wall to Barge canal lock No. 1. Gagings which may be considered the beginning of this new record have been taken from May 18, 1912, to December 31, 1914, at the upper end of lock No. 1.

On July 27, 1916, a standard Type B gage, No. 180, was erected near the angle in the east upper guide-wall above Lock street bridge, and has a range of 12 feet, between elevations 358.0 and 370.0. A standard bench-mark plug was set in the face of the wall near the gage, at elevation 368.0 (B. C. datum).

Barge canal construction has replaced the old crest at about elevation 359.1 with two sections of fixed crest at elevation 363.0, running diagonally upstream to six Taintor gates, each twenty-eight feet six inches clear span, immediately below the Lock street bridge.

The gage is read twice daily — morning and afternoon — to tenths.

Daily elevation of water surface (B. C. datum) of OSWEGO RIVER ABOVE DAM AT PHOENIX, for the year ended June 30, 1917. C. E. Greenfield, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	363.75	363.9	363.25	363.8	363.8	364.2	364.05	364.1	363.75	364.05	363.9	363.9
2.....	363.7	363.85	363.15	363.75	363.7	364.2	363.9	364.05	363.65	363.9	363.85	363.8
3.....	363.75	363.8	363.25	363.8	363.7	364.35	363.9	364.0	363.6	364.05	363.77	363.8
4.....	363.85	363.7	363.35	363.8	363.7	364.25	363.95	364.05	363.55	364.1	363.9	363.75
5.....	363.75	363.7	363.1	363.9	363.8	364.1	364.0	363.95	363.65	364.1	364.0	363.75
6.....	363.8	363.75	363.2	363.8	363.8	364.2	364.15	364.0	363.8	364.1	364.1	363.85
7.....	363.7	363.85	363.2	364.05	363.7	364.0	364.35	363.95	363.8	364.1	363.9	364.0
8.....	363.75	363.8	363.1	363.95	363.75	364.1	364.3	363.9	363.7	364.9	363.85	364.05
9.....	363.9	363.7	363.1	363.9	363.75	364.1	364.15	363.9	363.55	364.25	363.85	363.95
10.....	363.85	363.7	363.15	364.0	363.7	364.15	364.1	363.8	363.5	364.35	363.8	363.85
11.....	364.05	363.55	363.3	364.0	363.6	364.2	364.1	363.8	363.65	364.3	363.95	363.9
12.....	363.8	363.6	363.15	364.0	363.8	364.2	364.05	363.75	363.8	364.15	363.9	364.0
13.....	363.75	363.65	363.1	364.05	363.65	364.15	363.9	363.75	363.75	363.95	363.9	364.0
14.....	364.2	363.7	363.05	364.0	363.6	364.1	364.0	363.65	363.8	363.9	363.8	364.05
15.....	363.85	363.65	363.05	364.0	363.7	364.0	364.0	363.5	363.8	364.0	363.8	364.05
16.....	363.9	363.5	363.1	363.85	363.75	363.95	364.0	363.4	363.8	363.85	363.9	364.0
17.....	363.75	363.5	a	363.8	363.85	363.7	363.95	363.3	363.75	364.05	363.85	363.85
18.....	363.65	363.5	a	363.9	363.8	363.75	363.85	363.35	363.8	364.1	363.8	363.8
19.....	363.75	363.6	a	364.0	363.9	363.9	363.8	363.55	363.7	364.1	363.8	363.8
20.....	363.9	363.55	a	364.0	363.75	364.05	363.85	363.65	363.45	364.15	363.9	363.85
21.....	366.85	363.55	a	363.9	363.85	364.15	364.0	363.65	363.8	364.15	363.95	363.85
22.....	363.8	363.5	a	363.9	363.9	364.2	364.0	363.65	363.55	364.05	364.0	363.85
23.....	363.9	363.35	a	363.9	363.85	364.15	364.0	363.7	363.85	363.6	363.85	363.8
24.....	363.85	363.25	363.3	363.8	363.75	363.95	363.95	363.75	364.15	363.8	363.7	363.85
25.....	364.0	363.3	363.3	363.85	363.75	364.0	363.85	363.9	364.2	364.0	363.7	363.9
26.....	363.85	363.3	363.4	363.75	363.9	364.0	363.8	363.95	364.25	364.0	363.75	364.0
27.....	363.75	363.35	363.65	363.75	363.95	364.0	363.7	364.0	364.15	364.0	363.9	364.1
28.....	363.85	363.5	363.7	363.7	363.9	364.0	363.7	364.0	364.1	363.95	363.85	364.15
29.....	363.8	363.4	363.75	363.85	364.0	364.0	363.7	.....	364.2	363.9	363.85	364.15
30.....	363.95	363.3	363.75	363.6	364.05	364.0	363.75	.....	364.05	363.85	363.95	364.05
31.....	363.9	363.3	.....	363.7	.....	364.05	364.05	.....	364.05	.....	364.0	.....

OSWEGO RIVER BELOW DAM AT PHOENIX

The record of water-surface, "1,600 feet below dam at Phoenix," is that of the "North line gage" and has been taken as follows: November 1, 1910, to February 9, 1914, at junction of canal and river about 1,600 feet below the dam; February 10, 1914, to May 14, 1914, in river at temporary bridge about 800 feet below dam; May 15, 1914, and thereafter, in canal at lower end of Barge canal lock No. 1, at which location the surface is practically the same as at the junction of the canal and river.

On July 28, 1916, a standard Type B gage, No. 179, was erected on the end of the lower north approach wall to lock No. 1, and has a range of 16 feet, between elevations 352.0 and 368.0. The gage bench-mark, a copper plug set in stone at northwest corner of lock No. 1, is at elevation 368.55 (B. C. datum).

The gage is read twice daily — morning and afternoon — to tenths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER, 1,600 FEET BELOW DAM AT PHOENIX, for the year ended June 30, 1917. C. E. Greenfield, Observer.

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	356.2	353.45	353.05	353.5	353.4	353.15	353.45	354.45	355.3	356.8	355.4	355.6
2	356.25	353.4	353.1	353.25	353.0	353.05	353.2	354.65	355.2	356.95	355.8	355.65
3	355.85	353.45	352.75	353.0	353.0	353.3	353.25	354.7	355.25	357.05	356.6	355.5
4	356.0	353.3	352.95	352.95	352.95	354.7	353.35	355.5	355.85	357.25	355.45	355.4
5	356.1	353.45	353.1	353.05	352.9	355.4*	353.25	355.0	355.7	357.2	356.65	355.35
6	355.65	353.3	353.05	353.05	352.65	355.3*	353.6	354.25	354.5	357.5	356.95	355.2
7	355.45	353.4	352.9	353.1	352.9	353.75	354.95	354.05	354.15	357.5	355.85	355.75
8	355.05	352.95	352.8	353.5	352.9	353.45	355.6	354.1	354.05	357.85	356.45	356.1
9	354.75	353.55	352.95	353.55	352.9	354.0	354.35	354.2	354.05	357.9	355.8*	356.45
10	354.85	353.3	352.7	353.2	352.85	351.85	354.45	354.3	354.15	357.65	355.6	356.75
11	354.95	353.3	352.6	353.15	352.95	354.1	354.7	355.2	355.2	357.4	356.3	356.5
12	355.2	353.35	353.0	353.1	351.9	353.85	354.45	354.55	355.9	357.2	356.8	356.85
13	354.9	353.7	352.95	353.15	352.75	353.1	354.3	353.8	355.15	356.85	356.7	356.5
14	354.9	353.5	352.85	353.1	352.85	353.4	354.95	353.65	355.7	356.8	356.4	356.2
15	355.6	353.3	352.95	353.6	352.65	353.4	355.4	353.3	355.8	356.4	354.8	356.3
16	355.55	353.5	353.0	353.4	352.85	352.95	354.5	353.35	356.0	356.55	356.2	356.0
17	354.95	353.3	a	352.85	352.9	351.75	353.55	353.2	355.75	356.55	354.9	355.75
18	355.0	353.3	a	352.95	352.95	352.25	353.45	353.25	356.15	356.55	355.4	355.55
19	354.7	353.7	a	352.9	351.7	351.95	353.65	353.35	355.95	356.55	355.3	355.5
20	354.65	353.75	a	353.0	353.0	353.2	353.8	352.65	355.75	356.65	355.05	355.45
21	354.8	353.4	a	353.0	352.95	352.9	355.0	353.55	355.65	356.7	356.05	355.6
22	354.7	353.25	a	353.6	353.2	353.5	354.8	353.4	355.85	356.6	355.3	355.55
23	354.15	353.15	a	353.4	353.2	354.1	354.05	353.35	356.05	356.4	355.8	355.4
24	354.8	353.2	352.3	352.9	353.1	354.45	353.9	353.5	356.85	356.25	355.55	355.55
25	354.5	353.15	351.75	352.85	353.1	354.6	353.65	354.2	357.05	355.85	356.3	355.3
26	354.25	353.35	352.5	352.95	351.6	354.2	353.4	353.95	357.1	355.85	356.25	355.55
27	354.4	353.35	353.05	352.9	353.65	353.35	353.25	354.2	357.15	355.9	355.35	355.55
28	353.85	353.2	352.9	352.9	353.25	353.4	354.4	355.1	357.3	355.85	355.25	356.05
29	353.85	353.15	352.95	351.7	353.4	353.4	354.0	.....	357.3	355.85	355.65	356.3
30	354.65	353.15	353.05	353.0	353.4	353.6	353.45	.....	357.2	355.5	355.85	356.3
31	354.35	353.15	.....	352.4	.....	354.0	354.0	.....	357.05	.....	355.7	.....

a No record. * Record doubtful; adjacent gages would indicate that these elevations are on e or too high.

OSWEGO RIVER AT HINMANSVILLE

The Hinmansville highway bridge across the Oswego river is about three miles north of Phoenix. This station was established April 13, 1904, and discontinued February 25, 1914, owing to the removal of the old highway bridge. During this period a chain gage located on the downstream side of the bridge pier was read. The station was reestablished January 1, 1915. A direct-reading staff gage, located on the south abutment of a highway bridge over the mouth of the creek entering the river from the west immediately above the abutment of the Hinmansville bridge, was replaced on August 8, 1916, by a standard Type A gage, No. 178, erected in the same location and having a range of $11\frac{1}{2}$ feet, between elevations 351.5 and 363.0. The gage bench-mark, consisting of a square cut in the southwest corner of the south abutment of the highway bridge over the creek, is at elevation 362.899 (B. C. datum).

This gage is read once daily.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER AT HINMANSVILLE BRIDGE, NEAR PHOENIX, for the year ended June 30, 1917. Leon Hallenbeck, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	355.3	352.7	352.9	353.2	353.28	352.89	353.9	354.0	354.9	355.7	354.9	355.1
2.....	355.7	353.1	352.95	353.5	352.95	352.7	353.0	354.2	354.9	355.75	355.4	355.2
3.....	354.2	353.0	353.0	353.3	352.84	353.0	353.0	354.35	354.95	356.0	355.3	355.1
4.....	355.4	352.9	352.8	353.0	352.8	354.78	353.1	353.25	355.65	356.2	355.0	354.9
5.....	354.6	353.2	352.8	352.8	353.1	354.0	353.05	354.86	354.6	356.1	355.2	354.9
6.....	355.5	353.3	352.9	352.85	352.6	353.7	353.39	353.9	354.7	356.3	355.4	354.75
7.....	354.8	353.15	352.95	353.0	352.81	353.2	354.06	353.6	354.0	356.15	355.35	355.25
8.....	354.4	353.25	352.85	353.5	352.8	353.35	355.0	353.45	353.85	356.45	355.8	355.75
9.....	354.3	353.15	352.8	354.0	352.8	353.7	354.2	353.5	353.8	356.55	355.4	355.6
10.....	354.1	352.95	352.65	353.1	352.8	352.0	354.0	353.7	353.9	356.25	355.35	355.85
11.....	354.5	353.0	352.8	353.2	352.76	354.18	354.3	355.25	354.8	356.25	354.9	355.45
12.....	354.7	353.1	352.95	353.05	350.05	353.6	354.0	354.0	355.4	356.0	355.3	356.0
13.....	354.3	353.85	352.85	353.15	352.55	352.85	353.55	353.2	355.9	355.65	355.4	355.45
14.....	355.0	352.95	352.9	353.0	352.76	353.2	354.3	353.1	355.0	355.55	355.5	355.35
15.....	355.0	353.1	353.1	353.4	352.63	353.0	355.0	352.8	355.2	355.4	354.3	355.2
16.....	355.0	353.1	352.75	353.4	352.85	352.7	353.89	352.8	355.1	355.45	354.5	355.0
17.....	355.1	352.95	352.5	353.0	352.95	351.5	353.3	353.6	355.1	355.5	354.6	355.1
18.....	354.7	353.35	352.6	352.85	352.85	351.65	353.29	353.35	355.4	355.7	355.1	354.69
19.....	353.8	353.4	352.6	352.85	351.0	351.5	353.29	352.75	355.7	355.69	355.25	354.75
20.....	354.4	353.7	352.7	353.0	353.06	352.65	353.4	352.5	355.2	355.7	354.9	354.65
21.....	354.4	352.95	352.65	352.9	352.92	352.6	354.3	352.9	355.05	355.9	355.0	354.84
22.....	354.2	353.0	352.7	353.95	352.85	353.35	354.0	353.2	355.4	355.7	354.85	354.82
23.....	354.9	352.95	352.9	353.8	352.9	353.9	353.4	353.3	355.4	355.5	355.1	354.65
24.....	354.5	353.0	352.2	352.82	352.9	354.0	353.6	353.6	356.0	355.25	355.4	355.0
25.....	353.7	352.9	352.15	352.85	353.1	354.9	353.3	353.9	355.9	355.05	355.05	354.6
26.....	353.9	353.0	353.05	352.95	351.3	353.55	353.1	354.25	356.0	355.3	354.85	354.75
27.....	354.1	353.45	353.45	352.84	353.6	353.15	353.15	353.9	355.9	355.3	355.0	354.75
28.....	353.5	352.8	352.9	352.9	353.1	353.0	353.75	354.95	356.0	355.3	354.8	355.0
29.....	354.0	352.85	353.0	351.0	352.6	353.15	354.0	.....	356.15	355.35	355.4	355.4
30.....	355.1	352.9	353.0	353.04	353.25	353.7	.....	.....	355.85	355.1	355.4	355.3
31.....	353.7	352.95	.....	352.3	.....	353.68	353.35	.....	355.95	.....	355.2	.....

OSWEGO RIVER AT OX CREEK

Ox creek enters the Oswego river from the west, four miles upstream from the upper dam at Fulton. On April 12, 1904, a gaging station was established near its junction with Oswego river. A direct-reading staff gage, located on the downstream end of the north abutment of the Fulton-Phoenix highway bridge over Ox creek, was replaced on August 7, 1916, by a standard Type A gage, No. 177, in the same location. A standard bench-mark plug was set in the face of the abutment near the gage at elevation 358.0 (B. C. datum). This gage is about 700 feet upstream from the mouth of the creek and during floods in the creek there may be some slight drop between the gage and the river.

The gage is read once daily—at about 11 A. M.—to half-tenths and even hundredths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER AT MOUTH OF OX CREEK, NEAR FULTON, for the year ended June 30, 1917. B. M. Wilcox, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	355.10	353.00	352.70	353.00	352.70	352.54	352.92	353.90	354.22	354.65	354.15	354.60
2.....	355.48	352.85	352.65	352.70	352.74	352.20	352.62	353.55	354.18	354.80	354.68	354.68
3.....	354.45	353.02	352.60	352.65	352.68	352.78	352.50	354.05	354.44	354.85	354.42	354.72
4.....	355.35	352.80	352.70	352.55	352.72	354.00	352.55	354.70	355.32	355.00	354.40	354.32
5.....	353.75	353.00	352.60	352.65	352.45	353.68	352.50	354.10	354.44	354.80	354.65	354.64
6.....	354.35	353.30	352.60	352.75	352.15	353.10	352.92	353.05	353.10	354.88	354.90	354.25
7.....	354.25	353.00	352.65	352.60	352.50	352.64	354.15	352.20	352.85	354.90	354.62	354.80
8.....	353.95	352.95	352.65	353.45	352.58	352.60	354.00	352.82	353.12	355.20	354.24	354.90
9.....	354.20	353.10	352.65	353.50	352.50	353.20	353.52	353.00	353.02	355.20	354.85	354.98
10.....	353.62	352.80	352.40	352.65	352.48	351.46	353.25	353.25	353.46	354.90	354.58	355.02
11.....	354.00	352.90	352.55	352.60	352.52	353.30	352.84	354.30	355.70	354.90	354.76	354.65
12.....	354.32	353.00	352.60	352.70	350.96	353.05	352.80	353.52	354.95	354.75	354.80	355.00
13.....	353.92	352.55	352.65	352.65	352.26	352.22	352.80	352.80	355.32	354.62	355.02	354.75
14.....	354.30	353.00	352.50	352.85	352.40	352.45	353.85	352.40	354.48	354.75	354.38	354.24
15.....	354.25	352.70	352.55	353.30	352.24	352.78	354.44	352.40	354.50	354.55	353.90	354.16
16.....	355.00	352.70	352.50	352.80	352.25	352.05	353.34	352.45	354.72	354.50	354.44	354.05
17.....	353.65	352.65	352.65	352.50	352.50	351.30	352.66	352.60	354.72	354.64	354.00	354.40
18.....	354.15	352.65	352.55	352.65	352.62	351.78	352.74	353.50	354.70	354.65	354.00	353.90
19.....	353.60	353.15	352.40	352.50	351.35	351.00	352.62	352.52	355.00	354.50	354.52	354.25
20.....	353.85	353.35	352.30	352.50	352.22	352.44	352.90	351.80	354.48	354.98	354.42	353.90
21.....	354.38	352.95	352.45	352.70	352.68	352.20	354.12	353.88	354.35	354.92	354.12	353.90
22.....	353.88	352.90	352.60	353.25	352.60	352.75	353.85	352.60	354.62	354.90	354.42	353.90
23.....	354.62	352.90	352.60	352.85	352.78	352.76	353.88	352.58	354.72	354.55	354.80	354.00
24.....	353.65	352.60	352.00	352.60	353.84	353.92	352.98	354.98	354.64	354.54	354.52	354.08
25.....	353.90	352.65	351.80	352.50	352.78	354.25	352.60	353.82	354.95	354.58	354.45	353.82
26.....	353.55	352.80	352.10	352.55	351.45	353.80	352.58	353.98	354.75	354.75	354.42	354.25
27.....	354.00	352.10	352.70	352.52	352.70	352.42	352.82	353.05	354.72	354.65	354.90	354.00
28.....	353.25	352.75	352.60	352.65	352.78	352.42	353.55	353.95	354.88	354.70	354.15	354.52
29.....	353.35	352.75	352.60	351.32	352.60	352.95	353.32	.....	354.80	354.90	354.55	354.30
30.....	354.70	352.65	352.70	352.42	352.75	352.82	352.68	.....	354.60	354.20	354.85	354.40
31.....	353.85	352.65	.....	352.00	.....	353.74	352.88	.....	354.65	.....	354.55	.....

OSWEGO RIVER ABOVE UPPER DAM, FULTON

The record previously published as "above Oswego Falls Dam, Fulton," is from a gage located a short distance above the dam on the river side of the upper approach wall to Barge canal lock No. 2, and was discontinued, November 30, 1914. Gagings on the other side of the wall, *i. e.* in the approach to the lock, giving the water-surface above the dam more correctly than those on the river side of the wall, were begun June 7, 1912. On August 9, 1916, the staff gage was replaced by a standard Type A gage, No. 176, erected at the south end of the upper west gate recess of lock No. 2, and having a range of 12 feet, between elevations 349.0 and 361.0. A standard bench-mark plug was set in the wall near the gage at elevation 358.0 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 4 P. M. — to half-tenths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER ABOVE UPPER DAM, FULTON, for the year ended June 30, 1917. Ed. L. Parker, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1....	354.32	352.96	352.88	353.42	353.15	352.8	353.3	353.15	354.1	354.38	354.35	354.78
2....	354.82	353.02	352.88	353.22	352.88	352.5	352.62	353.25	354.05	354.35	354.75	354.60
3....	353.86	353.15	352.89	353.35	352.9	353.15	352.55	353.95	354.5	354.45	354.55	354.70
4....	354.95	352.90	353.10	352.8	352.85	354.18	352.7	354.95	355.3	354.65	354.52	354.31
5....	353.80	353.12	352.85	352.95	352.85	353.9	352.62	353.6	354.25	354.45	354.78	354.48
6....	354.17	353.34	352.82	352.92	352.45	353.12	352.95	353.3	353.05	354.55	354.85	354.60
7....	354.00	353.35	352.90	352.96	352.78	352.92	354.52	352.8	352.95	354.22	354.52	354.90
8....	353.86	353.00	352.80	353.72	352.8	352.92	354.1	352.98	353.15	354.60	354.35	354.90
9....	354.60	353.30	352.84	353.4	352.7	353.48	353.55	353.15	353.1	354.48	354.85	354.60
10....	353.70	353.00	352.70	352.92	352.75	351.0	353.38	353.2	352.95	354.38	354.65	354.75
11....	354.00	353.08	352.55	352.9	352.7	353.5	352.85	354.45	354.75	354.38	354.45	354.50
12....	354.20	353.18	352.78	352.98	350.68	353.1	352.76	353.52	354.88	354.32	354.90	354.68
13....	353.88	353.68	352.80	352.92	352.45	352.42	352.72	352.76	355.00	354.22	355.30	354.05
14....	354.2	353.2	352.70	352.92	352.6	352.7	354.35	352.58	354.15	354.38	354.55	353.88
15....	354.30	352.98	352.72	353.62	352.5	352.68	354.18	352.05	354.35	354.32	353.92	353.86
16....	354.90	353.15	352.72	353.22	352.69	352.3	353.12	352.45	354.52	354.22	354.42	353.80
17....	353.68	352.95	352.88	352.7	352.75	350.95	352.6	352.55	354.38	354.50	354.08	354.10
18....	354.15	353.02	352.65	352.8	352.75	351.22	352.8	353.25	354.5	354.59	354.85	353.88
19....	353.88	353.42	352.55	352.75	351.45	351.22	352.6	352.72	354.45	354.38	354.65	353.88
20....	353.80	353.75	352.65	352.8	352.75	352.6	352.95	351.75	354.25	354.50	354.55	353.80
21....	354.48	353.15	352.75	352.85	352.78	352.4	354.4	352.9	354.32	354.65	354.45	353.95
22....	353.95	353.05	352.68	353.42	352.9	352.75	353.8	352.65	354.68	354.65	354.25	353.55
23....	354.50	352.92	352.78	353.25	352.92	352.85	352.98	352.6	354.72	354.30	354.85	353.82
24....	353.75	352.95	352.22	352.75	352.85	353.82	352.7	352.95	354.55	354.38	354.68	354.05
25....	353.90	352.95	351.9	352.72	352.72	354.45	352.65	353.8	354.4	354.60	354.40	353.65
26....	353.55	353.15	352.35	352.8	351.25	353.22	352.52	353.3	354.32	354.45	354.45	354.00
27....	353.90	353.38	353.05	352.78	353.18	352.48	352.62	352.7	354.35	354.68	354.80	353.85
28....	353.40	353.00	352.72	352.8	352.88	352.68	354.08	353.7	354.38	354.65	354.40	353.9
29....	353.48	352.82	352.88	351.62	352.65	352.75	353.35	.....	354.32	354.85	354.72	354.15
30....	354.60	352.90	352.95	352.88	353.02	352.85	352.5	.....	354.30	354.32	354.90	354.00
31....	354.28	352.88	.....	352.28	.....	353.8	352.8	.....	354.38	.....	354.60	.....

OSWEGO RIVER BELOW UPPER DAM, FULTON

This station was established February 11, 1913, as gage "No. 66 about 2,300 feet above lower dam," Fulton, which is practically the same location as that occupied by direct-reading staff gage at the end of the west lower approach wall to Barge canal lock No. 2, which was replaced on August 10, 1916, by a standard Type B gage, No. 175, erected at the same location and having a range of 12 feet, between elevations 333.0 and 345.0. A standard bench-mark plug was set in the wall near the gage at elevation 340.0 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 4 P. M. — to half-tenths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER BELOW UPPER DAM, FULTON, for the year ended June 30, 1917. Ed. L. Parker, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	337.18	335.45	334.58	335.52	335.00	335.22	335.90	335.90	336.38	338.50	336.70	336.75
2.....	337.65	335.12	334.88	335.28	334.85	335.38	335.18	336.05	336.30	337.82	336.75	336.62
3.....	337.05	335.18	335.48	334.80	334.68	336.50	334.98	335.75	335.95	337.85	336.65	336.45
4.....	336.80	335.22	334.95	334.70	335.02	336.15	334.88	336.45	336.72	338.02	336.48	336.75
5.....	336.82	335.20	335.32	335.02	335.50	334.70	335.40	336.30	336.30	338.02	336.50	336.45
6.....	336.75	335.48	334.98	334.75	335.00	335.75	335.10	335.88	335.95	338.22	337.50	336.30
7.....	336.68	335.28	334.88	334.95	334.95	335.32	336.20	335.70	335.88	338.18	337.30	336.55
8.....	336.40	335.10	334.92	335.65	334.82	335.48	336.62	335.40	335.92	339.00	336.75	337.05
9.....	337.00	335.20	334.90	335.45	334.95	335.50	336.10	335.60	335.90	338.25	336.62	337.35
10.....	336.50	335.00	335.2.	335.15	334.80	336.95	336.02	335.15	335.45	338.15	336.50	338.25
11.....	336.35	335.05	334.72	335.05	334.90	336.10	335.80	336.40	336.52	338.18	336.25	337.50
12.....	336.42	334.95	335.08	335.10	335.72	336.32	335.75	336.08	336.65	338.02	336.20	337.60
13.....	336.38	335.68	334.82	334.75	334.75	335.80	335.40	335.18	337.12	337.80	337.25	337.45
14.....	336.45	335.10	334.85	334.72	334.82	335.88	336.00	335.70	337.12	337.68	336.85	337.70
15.....	336.70	335.10	334.85	335.48	334.78	335.76	336.02	335.00	337.02	338.20	336.00	337.60
16.....	337.38	335.10	334.90	335.32	334.92	335.48	335.90	335.25	337.08	337.42	336.25	337.75
17.....	336.62	334.98	332.48	335.30	334.88	336.65	335.40	335.00	336.92	337.52	336.22	337.98
18.....	336.30	334.92	335.10	334.60	334.70	335.65	335.08	335.52	337.80	337.55	336.15	337.15
19.....	336.32	335.10	334.88	335.02	335.82	335.25	335.22	335.50	336.70	337.60	336.25	337.00
20.....	336.28	335.68	334.92	334.85	335.15	335.42	335.05	334.90	337.05	337.65	336.90	337.10
21.....	336.25	335.02	334.88	334.72	334.78	335.20	336.15	334.88	336.92	337.62	336.55	337.20
22.....	336.15	335.02	334.78	335.42	335.08	335.20	335.80	334.88	337.10	338.15	336.42	337.32
23.....	336.42	334.92	334.72	335.40	335.17	334.72	335.52	334.82	337.12	337.30	336.70	336.88
24.....	335.85	334.92	335.18	334.90	334.78	335.95	335.60	334.85	337.75	336.88	336.50	337.50
25.....	336.20	335.10	334.88	334.80	334.80	336.12	335.55	335.82	338.65	337.00	336.32	337.02
26.....	335.70	334.95	334.90	334.75	335.80	335.82	335.28	335.62	338.10	337.05	336.30	337.20
27.....	335.45	335.88	334.85	334.88	335.60	335.60	334.78	335.68	338.15	336.95	336.95	337.08
28.....	335.52	335.18	334.75	334.92	335.45	334.82	335.88	336.12	338.05	336.75	336.32	337.78
29.....	335.08	334.95	334.90	336.32	334.68	335.18	335.70	.....	338.05	337.00	336.75	337.55
30.....	336.22	334.80	334.78	335.28	334.90	335.22	335.48	.....	338.05	336.90	337.45	337.60
31.....	335.92	334.92	.....	334.80	.....	335.75	335.85	.....	338.00	.....	336.85	.....

OSWEGO RIVER ABOVE LOWER DAM, FULTON

This station was established December 9, 1909, to obtain water-surface elevations only. The record has been taken at one or the other of two gages, giving practically the same readings, *i. e.* gage No. 54 on west bank about 600 feet above the dam and gage No. 64 on east side of river about 700 feet above dam.

A direct-reading staff, located on the east side of the river on the retaining wall just inside the south end of the open docking approach above Barge canal lock No. 3, was replaced on August 10, 1916, by a standard Type B gage, No. 174, erected at the same location and having a range of 12 feet, between elevations 332.0 and 344.0. A standard bench-mark plug was set in the face of the wall at elevation 340.0 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 4 P. M., (except during June, when readings are taken at 6 A. M. and 6 P. M.) — to half-tenths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER ABOVE LOWER DAM, FULTON, for the year ended June 30, 1917. H. H. Carlin, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	337.15	335.42	334.95	335.65	335.02	335.20	335.88	335.90	336.15	338.50	336.68	336.80
2.....	337.70	335.10	334.98	335.05	334.92	335.28	335.20	336.00	336.15	337.80	336.70	336.62
3.....	336.80	335.10	335.55	334.65	334.68	336.10	335.12	335.60	335.85	337.90	336.70	337.32
4.....	337.38	335.18	334.90	334.80	334.95	336.15	334.85	336.45	336.65	337.02	336.50	336.80
5.....	336.80	335.10	334.95	334.92	335.50	335.42	335.35	336.20	336.30	338.08	336.55	336.32
6.....	336.65	335.45	335.00	334.88	334.92	335.35	335.00	336.92	335.90	338.22	337.52	336.25
7.....	336.62	335.25	334.95	335.02	334.88	335.50	336.20	335.80	335.88	338.10	336.80	336.40
8.....	336.52	335.02	334.88	335.60	334.90	335.45	336.32	335.70	335.88	339.00	336.70	336.98
9.....	336.98	335.02	334.88	335.45	334.80	335.42	336.00	335.70	335.90	338.30	336.62	337.35
10.....	336.65	335.05	335.28	335.22	334.88	336.78	336.00	335.20	335.50	338.10	336.50	338.05
11.....	336.30	335.32	334.62	335.02	334.90	336.05	335.80	336.15	336.25	338.10	336.28	337.82
12.....	336.52	334.90	335.12	335.22	335.70	336.28	335.70	336.02	336.38	338.05	336.32	337.50
13.....	336.25	336.45	335.00	335.05	334.88	335.80	336.45	335.00	337.12	337.75	337.20	337.72
14.....	336.42	335.10	335.05	334.68	334.95	335.82	336.08	335.45	337.10	337.72	336.82	337.60
15.....	336.65	335.10	334.90	335.48	335.00	335.75	335.98	335.05	337.02	338.22	336.00	337.68
16.....	337.38	335.12	334.82	335.28	334.90	335.10	335.85	334.80	337.10	337.42	336.15	337.88
17.....	336.60	335.00	332.42	335.28	334.90	336.65	335.30	334.85	336.95	337.50	336.22	338.22
18.....	336.25	334.80	334.88	335.00	334.82	335.40	335.00	335.48	337.80	337.55	336.10	338.10
19.....	336.32	335.05	334.85	334.88	335.32	335.28	335.20	335.20	336.72	337.35	336.28	337.10
20.....	335.78	335.52	335.38	334.88	335.08	335.35	335.10	334.90	337.00	337.48	336.88	337.02
21.....	336.15	335.08	334.95	334.88	334.72	335.15	336.12	334.90	336.85	337.60	336.58	337.05
22.....	335.75	334.98	335.00	335.45	335.05	335.12	336.10	334.75	337.08	338.18	336.45	337.12
23.....	336.38	334.80	335.85	335.82	335.16	334.88	335.45	334.80	337.18	337.35	336.62	337.08
24.....	335.82	335.15	335.12	335.72	334.60	335.90	335.50	334.10	337.75	337.35	336.58	337.50
25.....	336.20	335.12	334.95	334.82	334.58	336.18	335.45	335.95	338.65	336.95	336.28	337.25
26.....	335.68	335.00	334.90	334.95	335.82	335.72	335.12	335.50	338.10	337.00	336.05	336.98
27.....	335.85	335.45	334.70	334.90	335.55	335.55	334.85	336.55	338.15	336.90	336.85	337.28
28.....	335.55	335.08	334.80	334.95	335.20	334.80	335.85	336.05	338.05	336.82	336.65	337.45
29.....	335.12	335.10	334.88	336.90	334.82	335.05	335.70	.....	338.08	337.30	336.50	337.55
30.....	336.00	335.00	334.88	335.22	334.82	335.05	335.40	.....	338.02	336.88	337.08	337.62
31.....	335.90	334.90	.....	334.85	.....	335.72	335.80	.....	337.98	.....	337.18	.....

OSWEGO RIVER BELOW LOWER DAM, FULTON

This station was established April 1, 1909, as gage No. 47 at end of east lower approach wall to and about 1,100 feet below Barge canal lock No. 3. The gage is at present located on the east lower approach wall immediately below lock No. 3 and under the Oneida street bridge. A direct-reading staff was replaced on August 11, 1916, by a standard Type A gage, No. 173, in two sections, erected at the same location. The lower section has a range of 8 feet, between elevations 306.0 and 314.0, and the upper section has a range of 4 feet, between elevations 314.0 and 318.0. A standard bench-mark plug was set in the face of the wall near the upper section at elevation 317.0 (B. C. datum). The record obtained at these gages is the elevation of the river at its junction with the canal at the lower end of a dike separating the canal and river for a distance of about 3,500 feet below lock No. 3.

The gage is read twice daily to half-tenths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER BELOW LOWER DAM, FULTON, for the year ended June 30, 1917. H. H. Carlin, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	310.0 ^c	308.65	308.08	308.1 ^c	308.0 ^c	308.0 ^c	308.62	308.90	309.95	311.2 ^c	309.02	309.20
2.....	309.55	308.15	308.00	308.25	308.00	308.15	308.15	309.00	309.80	311.22	309.00	309.25
3.....	309.85	308.10	307.78	308.02	308.00	307.98	308.22	309.18	309.40	311.45	309.02	309.20
4.....	309.30	308.12	307.85	308.00	307.82	308.42	308.22	309.10	308.70	311.52	309.00	309.05
5.....	308.75	308.00	307.88	308.00	307.78	308.18	308.08	309.75	309.55	311.60	308.92	308.68
6.....	309.50	307.42	307.80	307.95	307.98	308.50	308.20	309.30	308.90	311.72	309.10	308.58
7.....	309.25	308.30	307.85	308.12	307.98	308.25	307.90	309.08	308.75	311.85	309.72	308.85
8.....	308.90	308.05	308.02	308.30	308.00	308.28	308.92	308.80	308.90	311.95	309.50	308.85
9.....	308.62	308.40	307.98	308.42	308.02	308.18	308.65	308.75	308.82	312.25	309.35	310.42
10.....	308.80	308.20	307.85	308.12	307.95	308.55	308.68	308.65	308.45	311.95	308.95	310.80
11.....	308.80	308.10	308.10	308.22	308.00	308.45	308.65	308.55	308.38	311.80	308.75	310.82
12.....	308.75	308.20	308.02	308.18	308.05	308.68	308.88	309.80	309.40	311.62	308.75	310.95
13.....	308.65	307.85	307.85	308.15	308.18	308.38	308.60	308.75	309.95	311.15	308.70	311.32
14.....	308.80	308.25	308.05	308.08	308.12	308.30	308.00	308.80	309.95	311.02	309.35	311.20
15.....	309.00	308.00	308.05	307.90	308.18	308.45	309.18	308.45	309.90	310.60	308.40	310.88
16.....	308.78	308.05	308.38	308.30	308.05	308.25	308.90	308.28	309.82	310.60	308.70	310.90
17.....	308.95	308.12	307.62	308.15	308.10	308.40	308.52	308.00	309.68	310.58	308.65	310.38
18.....	308.70	307.90	308.10	308.00	308.20	308.30	308.35	307.55	309.78	310.70	308.52	310.02
19.....	308.85	308.10	307.92	308.10	307.98	308.22	308.45	308.75	309.95	311.02	308.58	310.08
20.....	308.35	308.30	307.88	308.05	308.22	308.30	308.32	308.90	309.98	310.95	308.35	310.10
21.....	308.65	308.18	307.95	308.10	308.02	308.15	308.20	308.20	309.62	311.18	308.80	309.65
22.....	308.42	308.12	307.62	307.95	308.12	308.25	309.30	308.05	309.70	311.10	308.90	309.78
23.....	308.15	308.05	307.85	308.15	308.02	308.05	308.65	308.15	309.90	310.62	309.00	309.52
24.....	308.50	308.15	307.68	308.00	307.90	307.85	308.70	308.25	311.42	310.45	309.00	309.38
25.....	308.62	308.15	308.05	307.98	308.02	308.05	308.60	307.82	311.95	310.15	309.25	309.25
26.....	308.55	308.22	307.82	308.00	307.90	308.62	308.30	309.25	311.85	309.68	308.60	309.40
27.....	308.45	307.90	308.10	308.00	308.25	308.28	308.15	308.90	311.95	309.55	308.38	310.10
28.....	308.45	308.28	307.95	308.05	308.10	308.02	307.95	309.70	311.85	309.38	308.60	310.32
29.....	308.10	308.10	307.95	308.18	307.85	308.20	308.90	.....	311.90	309.05	309.10	310.48
30.....	307.90	308.00	307.90	308.18	308.02	308.28	308.45	.....	311.85	309.38	309.18	310.60
31.....	308.58	307.95	.....	307.92	.....	307.78	308.62	.....	311.62	.....	308.32	.....

OSWEGO RIVER AT MINETTO

At Minetto a new curved dam (No. 5) with fixed concrete ogee crest 500 feet long at elevation 308.0, radius 192 feet, has been built immediately above the old straight dam, crest elevation 297.3, which has been removed. The upper pool was raised and water first flowed over new crest October 5, 1914.

Location.—In the village of Minetto at new Barge canal dam No. 5, about five miles above the mouth of the Oswego river.

Drainage area.—5,091 square miles. (United States Geological Survey topographic maps.)

Records available.—Water-surface elevations above and below old or new dam, April 18, 1904, to June 30, 1917. Discharge, October 1, 1914, to June 30, 1917.

Gages.—Above dam, until August 18, 1916, direct-reading staff on wing of retaining wall, west bank, about 400 feet upstream from dam. Since August 18, a standard Type A gage, No. 172, erected at the end of upper east gate recess of lock No. 5, and having a range of $11\frac{1}{2}$ feet, between elevations 304.0 and 315.5. A standard bench-mark plug was set in the wall near the gage at elevation 314.0 (B. C. datum).

Below dam, until August 18, 1916, concrete gage just below lower gates of lock No. 5. Since August 18, a standard Type B gage, No. 171, erected on the end of the lower west approach wall to lock No. 5, and having a range of 12 feet, between elevations 288.0 and 300.0. A standard bench-mark plug was set in the wall near the gage at elevation 296.0 (B. C. datum).

These gages are read twice daily — at 8 A. M. and 4 P. M. — to tenths.

Discharge measurements.—Flow over crest and through power-wheels calculated from hourly readings furnished by the Niagara, Lockport and Ontario Power Company, lessee. Wheels not tested in place. Discharge over dam from curve prepared by this Department. During lower stages the power-plant uses all water available, the pool being drawn down to crest of dam. Water used for canal purposes estimated by this Department.

Control.—Dam crest, Barge canal lock No. 5 and power-plant of the Northern New York Power Company. The latter started testing wheels September 8, 1915.

Extremes of discharge.—Current year: Maximum stage recorded, elevation 311.3, March 25 at 4:00 p. m.; discharge, 17,800 second-feet. Minimum stage recorded, September 24; discharge, 740 second-feet.

Regulation.—By the large number of lakes in the drainage area; and by pondage at Fulton and Phoenix.

Accuracy.—It is believed that the water passed through the wheels is somewhat underestimated, due to the lack of actual tests of wheels in place, but that the estimated discharge at this station is nearer correct than that obtained at High dam, which is based on only one or two daily readings.

Coöperation.—Discharge data furnished as above by the Niagara, Lockport and Ontario Power Company.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER ABOVE DAM A²
MINERRO, for the year ended June 30, 1917. William J. Frank and H. M. Searles,
Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	309.0	308.45	308.15	308.1	308.0	308.0	307.9	308.0	309.05	310.15	308.3	308.45
2.....	308.65	308.2	309.05	309.2	308.0	307.95	307.9	307.9	308.85	310.1	308.05	308.45
3.....	308.9	308.25	309.0	308.05	308.0	308.0	307.95	307.8	308.6	310.15	308.2	308.3
4.....	308.8	308.25	308.1	308.05	308.0	308.1	307.9	307.8	308.15	310.3	308.4	308.3
5.....	308.75	308.35	308.0	308.05	307.9	308.05	307.8	307.95	308.2	310.3	308.2	308.2
6.....	308.55	308.0	308.0	308.05	308.0	308.05	307.9	307.75	308.05	310.4	308.35	308.0
7.....	308.4	308.3	308.0	308.05	308.1	308.0	307.65	307.8	307.9	310.5	308.85	308.1
8.....	308.15	308.2	308.05	308.05	308.0	308.0	307.9	307.95	307.95	310.55	308.75	308.8
9.....	308.1	308.4	308.05	309.1	308.0	307.95	307.9	307.85	307.95	310.7	308.8	308.35
10.....	308.1	308.15	308.0	308.1	308.05	308.1	307.95	307.9	307.85	310.55	308.15	309.55
11.....	308.1	308.25	308.1	308.2	308.05	307.95	307.85	307.85	307.9	310.45	308.2	308.85
12.....	308.15	308.1	308.1	308.05	308.0	308.5	307.95	308.0	308.05	310.35	308.15	308.85
13.....	308.0	308.1	308.0	308.1	308.2	307.95	307.95	307.95	308.75	309.95	308.55	310.15
14.....	308.1	308.4	308.1	309.0	308.15	308.0	307.65	307.95	308.9	309.85	308.65	310.25
15.....	308.15	308.3	308.0	308.0	308.05	307.92	308.0	307.9	308.85	309.45	308.2	309.75
16.....	308.15	308.25	308.1	308.15	308.1	307.95	307.95	307.9	308.8	309.5	308.05	309.6
17.....	308.1	308.3	308.0	308.1	308.15	307.95	307.9	307.9	308.8	309.45	308.2	309.0
18.....	308.05	308.15	308.15	308.0	308.2	308.0	307.85	307.65	308.75	309.6	308.1	309.15
19.....	308.1	308.25	308.0	308.0	307.95	308.0	307.9	308.0	308.75	310.15	308.05	308.85
20.....	308.0	308.15	308.0	308.0	308.15	308.0	307.9	307.7	308.85	309.55	308.05	309.55
21.....	308.15	308.15	308.1	308.05	308.1	307.95	307.8	307.95	308.6	310.1	308.0	308.8
22.....	308.05	308.2	308.05	308.05	308.1	307.95	307.85	307.85	308.8	310.35	308.3	308.85
23.....	308.05	308.15	308.0	308.1	308.0	307.95	307.75	307.8	308.95	309.45	308.1	308.55
24.....	308.25	308.25	308.0	308.0	308.0	307.9	307.85	307.9	310.25	309.2	308.3	308.15
25.....	308.25	308.2	308.05	308.05	308.0	307.95	307.85	307.8	310.8	309.5	308.15	308.55
26.....	308.2	308.15	308.05	308.05	308.0	308.0	307.85	308.45	310.65	308.8	308.3	308.5
27.....	308.1	308.0	308.0	308.0	308.0	308.0	307.75	308.15	310.65	308.7	308.0	308.95
28.....	308.15	308.2	308.1	308.0	308.0	307.8	307.85	308.8	310.65	308.55	308.15	309.15
29.....	308.1	308.15	308.0	308.1	308.0	307.9	308.0	.....	310.55	308.6	308.4	309.45
30.....	308.05	308.1	308.1	308.05	308.0	307.9	307.95	.....	310.6	308.45	308.4	309.5
31.....	308.3	308.0	.....	308.0	.....	307.9	307.95	.....	310.45	.....	308.45	.....

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER BELOW DAM AT MINETTO, for the year ended June 30, 1917. William J. Frank and H. M. Searles, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	293.35	291.85	291.55	291.05	290.45	290.9	291.65	291.55	292.2	294.2	293.1	293.0
2	293.05	291.7	291.35	291.8	291.1	291.35	291.2	291.75	292.25	294.2	293.05	293.0
3	293.25	291.9	290.8	291.5	290.7	290.7	291.2	291.75	292.05	294.4	293.05	292.95
4	293.1	291.7	291.15	291.5	291.05	291.65	291.2	291.6	291.35	294.45	293.3	292.8
5	293.3	291.4	291.3	291.45	290.4	291.45	291.3	292.25	292.35	294.35	293.0	292.75
6	293.15	290.9	291.5	291.5	291.05	291.6	291.4	292.05	291.95	294.6	292.95	292.65
7	293.05	291.8	291.5	291.55	290.7	291.6	291.1	291.95	292.05	294.6	293.3	292.7
8	292.8	291.65	291.4	290.85	290.65	291.45	291.1	292.4	292.1	294.65	293.15	293.3
9	292.6	291.55	291.35	291.6	290.65	291.45	291.85	291.65	292.0	294.9	293.05	293.65
10	292.75	291.4	290.9	291.4	290.7	291.55	291.9	291.75	291.75	294.55	292.9	293.95
11	292.65	291.7	291.3	291.05	290.55	290.95	291.6	291.55	291.25	294.5	292.95	293.7
12	292.65	291.45	291.55	291.15	290.7	291.95	291.75	291.95	292.55	294.45	292.9	294.1
13	292.7	290.9	291.5	291.05	290.85	291.4	291.5	291.7	292.85	294.2	292.85	294.15
14	292.7	291.7	291.45	290.65	290.95	291.55	291.65	291.45	293.0	294.05	293.1	294.0
15	292.95	291.55	291.4	290.35	290.55	291.8	292.0	291.1	293.0	293.85	292.8	293.9
16	292.45	291.5	291.45	291.5	290.55	291.35	291.9	291.1	292.9	293.85	292.8	293.9
17	292.9	291.4	290.95	290.0	291.0	291.7	291.8	291.0	292.8	293.85	292.9	293.6
18	292.65	291.4	291.25	290.5	290.65	291.15	291.35	292.25	292.9	293.9	292.65	293.6
19	292.6	291.35	291.55	290.65	290.95	290.95	291.4	292.95	292.9	294.05	292.55	293.55
20	292.4	291.3	291.45	291.8	291.05	290.75	291.3	290.9	293.0	293.85	292.55	293.6
21	292.45	291.7	291.45	290.55	290.8	291.1	290.65	290.75	292.8	294.1	292.55	293.4
22	292.45	291.7	291.3	290.45	290.85	291.15	292.05	290.65	292.9	293.85	292.95	293.45
23	291.9	291.35	291.45	291.55	291.2	291.15	291.75	291.05	292.95	293.9	292.95	293.3
24	292.3	291.5	290.6	290.8	290.7	292.65	291.8	291.05	293.95	293.5	293.0	293.15
25	292.4	291.4	291.1	290.6	290.5	290.65	291.8	292.4	293.95	293.3	292.7	293.25
26	292.15	291.55	291.1	290.45	290.4	291.45	291.6	291.7	294.7	293.45	292.9	293.25
27	292.1	291.3	291.25	290.5	291.3	291.05	291.7	291.6	294.65	293.45	292.5	293.55
28	292.2	291.7	291.45	290.45	291.2	291.1	292.8	291.9	294.7	293.45	292.6	293.7
29	291.65	291.7	291.55	291.4	290.7	291.1	291.8	.....	294.65	292.95	292.85	293.8
30	291.4	291.45	291.25	290.85	290.9	291.25	291.6	.....	294.5	293.15	293.05	293.9
31	292.25	291.4	.....	290.3	.....	292.3	291.65	.....	294.4	.....	293.05	.....

Daily discharge, in second-feet, of OSWEGO RIVER AT MINETTO, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	7,060	3,140	2,190	1,190	2,290	3,230	3,610	4,740	6,530	11,340	7,030	6,840
2	7,690	2,790	2,120	2,320	2,430	3,730	3,330	4,860	6,190	11,560	6,170	6,990
3	8,030	3,050	890	2,210	2,680	2,580	3,290	4,510	5,540	11,700	6,360	5,570
4	7,140	2,640	1,760	2,240	2,000	4,320	3,330	3,840	4,510	11,930	6,170	6,450
5	7,240	2,430	2,220	2,230	1,950	4,460	3,430	5,210	5,620	12,180	6,350	6,040
6	6,650	1,340	2,240	2,320	2,490	4,380	3,710	4,850	4,870	13,160	6,600	5,590
7	6,620	2,730	2,110	2,520	2,540	3,880	3,220	4,470	5,190	12,830	7,010	6,020
8	6,000	3,050	2,200	1,550	2,470	3,900	5,400	4,180	4,96	14,210	6,920	7,690
9	5,910	2,340	2,130	2,880	2,400	4,010	4,910	4,310	4,790	14,790	6,770	8,940
10	6,070	2,680	950	2,720	2,390	3,690	4,570	4,100	4,440	13,990	5,240	9,910
11	5,940	2,590	1,630	2,760	2,570	4,120	4,590	3,200	3,890	14,090	5,770	10,120
12	5,700	2,290	2,170	2,790	1,860	4,580	3,920	4,690	6,400	12,900	6,030	10,480
13	5,700	1,460	2,180	2,790	2,020	4,590	4,130	4,030	7,630	11,890	5,320	11,300
14	5,860	2,590	2,000	2,580	2,610	4,070	2,660	3,830	7,830	11,400	6,530	11,320
15	6,460	2,510	2,200	1,540	2,430	4,600	4,390	3,270	8,130	10,630	4,920	10,170
16	5,840	2,460	2,020	2,660	2,440	3,870	4,620	3,160	7,850	10,350	5,490	9,920
17	6,010	2,330	830	2,400	2,860	3,700	4,140	3,290	8,290	10,150	5,040	8,900
18	5,140	2,160	1,730	2,430	2,740	2,930	4,030	3,270	8,570	10,990	5,360	8,540
19	5,200	2,130	2,050	2,730	1,940	3,180	3,920	2,990	7,840	10,410	5,540	7,950
20	4,330	1,530	2,000	2,660	2,290	3,470	3,900	3,880	8,440	10,150	4,460	7,780

Daily discharge, in second-feet, of OSWEGO RIVER AT MINETTO, for the year ended June 30, 1917 — *Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	4,780	2,280	1,920	2,470	2,380	3,560	3,060	2,710	7,300	11,460	5,440	7,607
22.....	4,690	2,340	1,980	1,530	2,790	3,660	4,840	3,150	8,000	11,720	6,060	7,690
23.....	3,690	2,170	1,900	2,930	2,970	3,740	4,280	3,010	8,670	10,170	6,460	7,360
24.....	4,430	2,240	740	2,620	2,510	2,620	4,270	3,290	12,560	8,340	6,380	6,900
25.....	4,510	2,230	1,600	2,510	2,940	2,790	4,040	2,360	13,880	7,790	5,700	6,930
26.....	4,030	1,980	1,320	2,440	2,060	4,030	3,920	4,250	13,510	7,770	5,680	7,290
27.....	3,860	1,000	1,820	2,540	2,620	3,810	3,720	4,500	13,210	7,390	5,100	7,870
28.....	3,940	2,220	2,090	2,350	3,590	3,260	2,580	5,740	12,840	7,000	5,890	6,560
29.....	3,110	2,260	2,120	1,890	2,790	3,670	4,150	.....	12,670	6,480	6,600	9,270
30.....	2,490	2,290	2,130	2,350	3,330	3,180	4,000	.....	12,510	6,870	6,730	9,520
31.....	3,560	2,250	.....	2,210	.....	2,340	4,460	.....	11,770	.....	7,170	.....
Mean...	5,437	2,307	1,838	2,366	2,513	3,675	3,948	3,850	8,204	10,855	6,009	8,183

Monthly discharge of OSWEGO RIVER AT MINETTO, for the year ended June 30, 1917
(Drainage area, 5,091 square miles)

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	8,030	2,480	5,437	1.068	1.232
August.....	3,140	1,000	2,307	0.453	0.522
September.....	2,240	740	1,838	0.361	0.403
October.....	2,930	1,180	2,366	0.465	0.536
November.....	3,590	1,860	2,513	0.494	0.551
December.....	4,600	2,340	3,675	0.722	0.832
January.....	5,400	2,580	3,948	0.775	0.89
February.....	5,740	1,370	3,850	0.756	0.79
March.....	13,860	3,890	8,204	1.611	1.86
April.....	14,790	6,480	10,855	2.132	2.38
May.....	7,170	4,460	6,009	1.180	1.36
June.....	11,320	5,570	8,183	1.607	1.79
The year.....	14,790	740	4,931	0.969	13.14

OSWEGO RIVER AT NEW HIGH DAM, OSWEGO

High dam (old) with fixed crest at about elevation 281.8 has been removed above elevation 268.0, having been submerged by the pool formed by new High dam (dam No. 6) located about a mile farther downstream with fixed concrete ogee crest 500 feet long at elevation 290.0. The new pool was filled January 7, 1915.

Location.—At Barge canal dam No. 6, known as new High dam, just south of the city of Oswego and about 2 miles above the mouth of the Oswego river.

Drainage area.— 5,097 square miles. United States Geological Survey topographic maps.)

Records available.— Water-surface elevation above and below, January 1, 1915, to June 30, 1917. Discharge, January 7, 1915, to June 30, 1917.

Gages.—Above dam, until August 17, 1916, direct-reading staff on wing of east upper approach wall to lock No. 6, about 350 feet upstream from crest of dam. Since August 17, a standard Type B gage, No. 170, erected at the same location and having a range of 12 feet, between elevations 286.0 and 298.0. A standard bench-mark plug was set in the wall at elevation 296.0 (B. C. datum).

Below dam, until August 17, 1916, a direct-reading staff on wing of each lower approach wall to lock No. 6. Since August 17, a standard Type B gage, No. 169, erected at the same location and having a range of 12 feet, between elevation 265.0 and 277.0. A standard bench-mark plug was set in the face of the wall near the gage at elevation 274.0 (B. C. datum).

These gages are read twice daily — at 8 A. M. and 4 P. M.— to half-tenths.

Discharge measurements.—Ordinarily the entire flow of the river, except the small amount required for canal purposes, passes over the dam. During certain periods the gates in the bulkhead at the west end of the dam were opened, but a complete and accurate record of this gate operation is not available. Where possible the flow through the bulkhead has been estimated, and when the indications are that the gates must have been open but records are lacking, discharge estimates are omitted. Water used for canal purposes is included.

Control.— Crest, Barge canal lock No. 6 and bulkhead gates.

*** Extremes of discharge.**— Current year: Maximum stage recorded, elevation 294.4 on April 9 at 8:00 A. M.; discharge, 18,200 second-feet. Minimum stage recorded, elevation 288.2, December 31 at 4:00 P. M.

*** Emendation.**— Maximum stage recorded for the nine months ended June 30, 1916, as published in the report of the State Engineer and Surveyor for 1916, Vol. II, page 80, should read, elevation 296.30 instead of 293.30.

Regulation.— By the large number of lakes in the drainage area and by pondage at Fulton and Phoenix.

Accuracy.— The operation of the bulkhead gates as noted above has reduced the accuracy of the record that would otherwise be obtained from the flow over the crest alone. The one or two daily readings are not a sufficient basis for accurate discharge estimates, owing to the fluctuation of flow caused by pondage and industrial wheels at Fulton and Phoenix. It is believed that the estimated discharge at this station is too high and that those obtained at Minetto, while possibly a little low, are nearer correct.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER ABOVE NEW HIGH DAM, OSWEGO, for the year ended June 30, 1917. James R. Kelly, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	293.32	292.10	291.35	291.05	290.08	290.90	291.55	291.60	291.85	293.88	292.92	292.88
2.....	293.18	291.75	291.32	291.60	291.00	291.25	291.08	291.68	291.88	293.92	292.85	292.88
3.....	293.15	291.90	290.98	291.42	290.80	290.68	291.00	291.55	291.80	294.05	292.82	292.65
4.....	293.12	291.63	291.00	291.40	291.00	291.10	290.98	290.82	291.25	294.08	292.92	292.68
5.....	293.10	291.42	291.32	291.40	290.42	291.42	291.20	291.95	292.05	294.10	292.82	292.70
6.....	293.00	290.92	291.40	291.42	290.90	291.50	291.30	291.90	291.68	294.25	292.80	292.52
7.....	293.00	291.68	291.70	291.55	290.75	291.45	290.62	291.68	291.83	294.20	293.20	292.65
8.....	292.75	291.48	291.60	291.05	290.65	291.25	291.92	291.42	291.82	294.32	293.02	293.08
9.....	292.52	291.45	291.30	291.78	290.52	291.35	291.78	291.45	291.85	291.35	292.95	293.38
10.....	292.75	291.60	290.88	291.35	290.70	291.42	291.68	291.35	291.55	294.22	292.75	293.38
11.....	292.57	291.58	291.32	291.00	290.50	290.92	291.42	290.58	290.82	294.22	292.75	293.62
12.....	292.75	291.30	291.52	290.92	290.80	291.72	291.52	291.65	292.28	294.12	292.78	293.78
13.....	292.60	291.00	291.58	291.08	290.88	291.30	291.58	291.15	292.58	293.82	292.42	293.90
14.....	292.80	291.58	291.38	290.52	290.85	291.32	290.30	291.20	292.68	293.78	292.95	293.82
15.....	292.90	291.52	291.50	290.40	290.45	291.70	291.60	291.00	292.68	293.58	292.75	293.52
16.....	292.62	291.38	291.38	291.10	290.48	291.28	291.50	291.02	292.68	293.55	292.65	293.50
17.....	292.80	291.28	291.00	290.25	290.85	291.50	291.50	290.58	292.60	293.58	292.62	293.42
18.....	292.52	291.32	291.18	290.42	290.60	290.90	291.18	290.08	292.65	293.65	292.62	293.15
19.....	292.55	291.20	291.45	290.52	291.02	290.75	291.10	290.42	292.62	293.72	292.48	293.02
20.....	292.32	291.28	291.32	291.40	290.98	290.42	291.02	291.18	292.70	293.62	292.18	293.15
21.....	292.30	291.48	291.38	291.00	290.75	291.02	290.40	290.50	292.62	293.70	292.68	293.12
22.....	292.30	291.62	291.18	290.50	290.78	290.92	291.70	290.75	292.70	293.50	292.82	293.08
23.....	292.15	291.32	291.40	291.45	290.12	291.00	291.50	290.82	292.80	293.65	292.82	293.15
24.....	292.32	291.32	290.60	290.80	290.70	289.10	291.52	290.90	293.50	293.32	292.90	293.10
25.....	292.35	291.32	291.03	290.52	290.90	290.55	291.45	289.20	293.55	293.10	292.75	293.02
26.....	292.15	291.42	291.12	290.45	290.30	291.35	291.35	291.50	294.28	293.20	292.78	293.05
27.....	292.12	291.25	291.45	290.48	291.35	291.02	291.45	291.45	294.30	293.20	292.22	293.25
28.....	292.22	291.40	291.38	290.42	291.12	290.95	289.32	291.68	294.30	293.12	292.52	293.45
29.....	291.72	291.48	291.48	291.03	290.65	291.00	291.42	.....	294.25	292.60	292.75	293.50
30.....	291.45	291.55	291.32	290.68	290.80	291.08	291.35	.....	294.10	293.00	292.90	293.55
31.....	291.45	291.32	.....	290.25	.....	288.62	291.50	.....	294.08	.....	292.90	.....

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER BELOW NEW HIGH DAM, OSWEGO, for the year ended June 30, 1917. James R. Kelly, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	271.20	269.60	268.30	268.45	267.62	269.38	270.40	270.08	270.35	272.25	270.75	270.82
2.....	271.25	269.08	268.75	269.20	269.15	269.75	269.75	270.20	270.38	271.95	270.68	270.65
3.....	271.10	269.48	267.48	268.98	268.80	269.65	269.62	270.18	270.32	272.10	270.62	270.75
4.....	271.20	269.02	268.08	268.85	269.20	270.00	269.60	269.72	270.12	272.15	270.72	270.75
5.....	271.00	269.12	268.75	268.90	269.25	269.88	269.68	270.48	270.55	272.25	270.62	270.60
6.....	270.90	268.00	268.98	269.02	269.20	269.90	269.75	270.35	270.25	272.35	270.98	270.50
7.....	270.82	269.15	269.25	269.25	269.10	269.85	269.70	270.15	270.38	272.30	271.02	270.55
8.....	270.55	269.12	269.08	269.05	269.00	269.75	270.40	269.98	270.32	272.75	270.92	271.02
9.....	270.60	268.85	268.72	269.28	268.95	269.80	270.25	270.02	270.35	272.55	270.85	271.40
10.....	270.52	269.25	268.85	269.22	269.05	270.32	270.12	269.92	270.02	272.35	270.55	271.68
11.....	270.25	269.00	268.30	269.10	268.82	269.50	269.98	269.58	269.85	272.35	270.60	271.65
12.....	270.40	268.60	269.48	269.28	269.50	270.10	270.05	270.18	270.78	272.18	270.72	271.75
13.....	270.20	268.75	269.52	269.38	267.02	269.98	269.88	269.75	271.08	271.85	270.50	271.95
14.....	270.45	268.30	269.30	269.28	269.12	269.80	269.35	269.60	271.20	271.78	270.78	271.78
15.....	270.82	268.90	269.38	268.55	268.78	270.08	270.10	269.60	271.22	271.78	270.55	271.32
16.....	270.65	268.72	269.32	269.20	268.80	269.75	269.95	269.55	271.12	271.55	270.40	271.60
17.....	270.68	268.35	268.10	268.88	269.18	270.32	269.95	269.30	271.05	271.55	270.32	271.65
18.....	270.30	268.30	268.22	268.80	268.90	269.12	269.60	269.12	271.40	271.70	270.40	271.20
19.....	270.22	268.50	269.38	268.90	269.22	269.25	269.58	269.15	270.00	271.75	270.32	271.05
20.....	269.90	269.20	269.10	268.42	267.78	269.10	269.60	269.55	271.10	271.60	270.25	271.12
21.....	269.88	268.75	269.32	269.28	268.98	269.50	269.35	269.10	271.05	271.75	270.42	271.12
22.....	270.00	268.55	269.08	268.58	269.10	269.30	270.20	269.30	271.20	271.75	270.65	270.60
23.....	270.20	268.08	269.38	269.68	269.48	269.48	270.00	269.30	271.25	271.60	270.65	271.18
24.....	269.92	267.92	267.98	269.40	269.10	269.22	270.02	269.48	272.10	271.25	270.72	271.05
25.....	269.95	268.00	268.30	269.08	269.30	269.55	269.92	269.15	272.55	271.10	270.48	271.00
26.....	269.75	268.10	266.65	268.95	269.25	269.82	269.82	269.70	272.45	271.25	270.65	271.10
27.....	269.70	268.62	268.75	269.05	269.35	269.48	269.92	269.92	272.35	271.12	270.58	271.25
28.....	270.05	268.08	268.98	268.98	269.55	269.52	269.28	270.12	272.30	271.15	270.52	271.38
29.....	269.25	268.95	269.00	269.12	269.20	269.45	269.90	.....	272.35	270.80	270.60	271.48
30.....	269.45	268.75	268.88	269.40	269.80	269.78	269.80	.....	272.15	270.85	270.98	271.62
31.....	269.45	268.58	.....	268.95	.....	269.30	269.98	.....	272.20	.....	270.92	.....

Daily discharge, in second-feet, of OSWEGO RIVER AT NEW HIGH DAM, OSWEGO, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	11,830	5,740	2,830	1,900	*	*	6,360	6,550	7,550	15,060	9,660	9,460
2.....	11,050	4,290	2,740	3,740	*	*	4,780	6,860	7,680	15,290	9,800	9,460
3.....	10,890	4,890	1,690	3,090	*	*	4,500	6,360	7,350	16,080	9,150	8,300
4.....	10,730	3,920	1,740	3,010	*	*	4,440	4,000	5,290	16,260	9,660	8,450
5.....	10,620	3,080	2,740	3,020	*	*	5,130	7,970	8,410	16,380	9,150	8,640
6.....	10,090	1,520	3,000	3,090	*	*	5,460	7,760	6,860	17,310	9,040	7,680
7.....	10,090	3,920	4,090	3,660	*	*	3,510	6,860	7,470	17,000	11,160	8,300
8.....	8,800	3,290	3,720	1,900	*	*	7,840	5,880	7,430	17,740	10,190	10,520
9.....	7,670	3,180	2,660	4,420	*	*	7,260	5,980	7,550	17,930	9,820	11,830
10.....	8,800	3,720	1,430	*	*	*	6,860	5,630	6,360	17,120	8,790	12,160
11.....	7,570	3,640	2,730	*	*	*	5,880	3,420	4,000	17,120	8,790	12,550
12.....	8,800	2,670	3,420	*	*	*	6,240	6,740	9,450	16,510	8,940	14,460
13.....	8,050	1,750	3,640	*	*	*	6,470	4,960	10,900	14,700	7,180	15,180
14.....	9,050	3,640	2,930	*	*	*	2,930	5,130	11,400	14,110	9,820	14,710
15.....	9,560	3,420	3,350	*	*	*	6,550	4,500	11,400	13,290	8,540	12,950
16.....	8,180	2,940	2,940	*	*	*	6,170	4,560	11,400	13,120	8,290	12,840
17.....	9,060	2,610	1,760	*	*	*	6,170	3,420	11,000	13,290	8,160	12,270
18.....	7,670	2,730	2,280	*	*	*	5,060	2,510	11,260	13,700	8,150	10,690
19.....	7,810	2,350	3,170	*	*	*	4,800	3,120	10,610	14,110	7,470	10,200
20.....	6,720	2,600	2,730	*	*	*	4,660	4,960	11,500	13,520	6,080	10,890

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 83

Daily discharge, in second-feet, of OSWEGO RIVER AT NEW HIGH DAM, OSWEGO
for the year ended June 30, 1917—*Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	6,630	3,280	2,930	*	*	*	3,080	3,260	11,100	13,990	8,450	10,740
22.....	6,640	3,790	2,880	*	*	*	6,940	3,820	11,500	12,830	9,150	10,510
23.....	5,960	2,730	3,000	*	*	4,500	6,170	4,000	12,030	13,700	9,150	10,890
24.....	6,720	2,740	762	*	*	2,520	6,240	4,210	14,360	11,820	9,570	10,610
25.....	7,010	2,740	1,970	*	*	3,420	6,100	2,530	13,120	10,610	8,790	11,036
26.....	5,960	3,070	2,100	*	*	5,630	5,630	6,170	17,490	11,160	8,950	10,360
27.....	5,830	2,500	3,280	*	*	4,560	5,980	6,980	17,620	11,160	6,280	11,440
28.....	6,270	3,000	2,940	*	*	4,350	2,550	6,860	17,620	10,720	7,660	12,570
29.....	4,180	3,280	3,280	*	*	4,500	5,880	.....	17,310	8,050	8,790	12,830
30.....	3,170	3,540	2,730	*	*	4,740	5,630	.....	16,390	10,080	9,580	13,130
31.....	3,170	2,740	.....	*	.....	2,460	6,170	.....	16,260	.....	9,830	.....
Mean....	7,839	3,204	2,695	.....	.....	.....	5,525	5,143	10,957	14,125	8,824	11,192

* By comparison with Minetto, it is believed that the bulkhead gates were open a part or all o. this time, but owing to incomplete records, discharge during this period is not published.

Monthly discharge of OSWEGO RIVER AT NEW HIGH DAM, OSWEGO, for the year
ended June 30, 1917

[Drainage area, 5,097 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	11,830	3,170	7,889	1.548	1.78
August.....	5,740	1,520	3,204	0.629	0.73
September.....	4,090	760	2,695	0.529	0.59
October.....	.....	.....	.....	.....	.....
November.....	.....	.....	.....	.....	.....
December.....	.....	.....	.....	.....	.....
January.....	7,840	2,550	5,525	1.08	1.24
February.....	7,970	2,510	5,143	1.01	1.05
March.....	17,620	4,000	10,957	2.15	2.48
April.....	17,930	8,050	14,125	2.77	3.09
May.....	11,160	6,080	8,824	1.73	1.99
June.....	15,180	7,680	11,192	2.20	2.46

OSWEGO RIVER ABOVE CURVED DAM, OSWEGO

The record heretofore published as "Oswego River above Curved Dam" is that obtained at gage No. 2 on the west side of the river. This gage was established April 7, 1904, and until December 10, 1916, consisted of a staff gage secured to the north face of the third pier south of, and part of, the upper approach to the Varick canal lock at the west end of the curved dam at Oswego. Since December 12, 1916, a standard Type A gage in the same location has been used. This gage has a range of 10 feet, between elevations 266.0 and 276.0 (B. C. datum), and is read once daily. It indicates the water-surface about 100 feet above the dam.

This gage should not be confused with the gage at the east end of the dam, whose record is published as "Oswego River, East Side, above Curved Dam, Oswego."

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER, ABOVE CURVED DAM, OSWEGO, for the year ended June 30, 1917. D. D. Tompkins, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	271.05	269.65	268.65	268.75	266.85	269.75	270.55	270.2	270.35	272.3	270.6	270.80
2.....	271.25	268.85	268.65	269.35	269.35	269.85	269.9	270.3	270.32	272.0	270.5	270.7
3.....	271.35	269.35	268.65	269.25	269.25	269.85	269.6	270.1	270.25	272.0	270.7	270.8
4.....	271.25	269.15	266.25	269.35	269.25	270.25	269.6	269.7	270.1	272.0	270.8	270.7
5.....	271.15	268.95	268.35	269.25	269.05	269.95	269.6	270.5	270.1	272.0	270.6	270.5
6.....	270.85	268.95	268.85	269.15	269.45	269.95	269.9	270.3	270.3	272.2	271.0	270.35
7.....	270.75	269.05	269.35	269.25	269.35	269.95	269.5	270.2	270.3	272.3	270.9	270.5
8.....	270.45	269.05	268.95	269.25	269.05	269.95	269.9	270.3	270.35	272.6	271.1	270.9
9.....	270.45	268.65	268.75	269.15	269.05	269.95	270.12	270.0	270.45	272.6	270.8	271.2
10.....	270.65	268.65	268.75	269.35	268.95	271.05	270.35	270.1	270.25	272.3	270.5	272.0
11.....	270.15	268.95	267.75	269.35	268.85	268.65	270.12	269.5	270.0	272.3	270.55	271.9
12.....	270.45	268.65	269.75	269.45	269.75	270.1	269.3	270.0	270.4	272.2	270.5	271.7
13.....	270.45	268.55	269.75	269.45	267.40	270.0	270.35	270.1	270.95	271.9	270.2	272.1
14.....	270.35	268.35	269.75	269.35	269.45	270.0	269.6	269.9	271.05	271.9	270.6	271.4
15.....	270.65	268.65	269.45	269.05	268.85	270.22	269.7	269.5	271.05	271.9	270.4	271.8
16.....	270.15	268.65	269.45	269.05	268.85	269.85	270.25	269.8	271.12	271.6	270.4	271.6
17.....	270.65	268.75	269.35	268.75	269.55	270.0	270.25	269.55	271.1	271.4	270.5	271.6
18.....	270.15	268.65	268.05	268.85	268.95	268.7	269.85	269.6	271.5	271.6	270.4	271.3
19.....	270.15	268.65	268.45	269.05	269.45	268.8	270.0	268.6	271.9	271.8	270.0	271.25
20.....	270.05	269.65	269.35	268.75	268.95	269.0	269.7	269.1	271.2	271.5	270.2	271.3
21.....	269.85	268.55	269.35	269.35	269.15	269.65	269.6	269.05	271.0	271.9	270.1	270.9
22.....	269.95	268.65	269.15	269.25	269.25	269.4	270.4	269.55	271.1	271.8	270.6	271.0
23.....	270.25	268.55	269.25	269.65	269.65	269.42	270.05	269.55	271.15	271.9	270.5	271.0
24.....	270.15	268.55	269.25	269.65	269.15	269.5	270.3	269.35	272.0	271.7	270.7	271.2
25.....	269.75	268.65	268.75	269.25	268.95	269.75	270.2	269.3	272.75	271.0	270.5	270.9
26.....	269.85	268.75	265.25	269.25	269.85	269.2	270.0	269.2	272.55	271.1	270.5	270.8
27.....	269.65	269.35	269.25	269.15	269.65	269.8	269.9	270.0	272.5	271.2	270.2	271.3
28.....	269.85	268.95	269.05	269.05	269.75	269.4	269.9	270.0	272.4	271.0	270.3	271.8
29.....	269.15	268.95	268.95	269.85	269.25	269.5	269.8	.....	272.35	271.7	270.6	271.2
30.....	269.05	269.05	268.95	269.25	269.95	269.9	269.95	.....	272.3	270.8	271.0	271.4
31.....	269.65	268.75	.....	268.85	.....	269.4	269.95	.....	272.3	.....	270.75	.....

OSWEGO RIVER, EAST SIDE, ABOVE CURVED DAM, OSWEGO

This gage was established December, 1907, as gage L of the Oswego specials. The gage was originally a reference point, elevation 275.56, located at the east end of the curved dam on the upstream face of the abutment about twenty-five feet from the end of the crest. On August 16, 1916, a standard Type A gage, No. 168, was erected at the south end of the upper east gate recess of lock No. 7. It has a range of 8 feet, between elevations 267.0 and 275.0. A standard bench-mark plug was set in the wall near the gage at elevation 275.0 (B. C. datum).

This gage should not be confused with the gage on the west side of the river, the record of which is published as "Oswego River above Curved Dam, Oswego."

The gage is read twice daily — at 8:00 A. M. and 4:00 P. M. — to half-tenths.

Daily elevation of water-surface (B. C. datum) of OSWEGO RIVER, EAST SIDE, ABOVE CURVED DAM, OSWEGO, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	271.11	269.66	268.30	268.40	267.55	269.40	270.28	270.05	270.30	272.25	270.30	270.80
2.....	271.26	268.91	268.55	268.55	269.22	269.75	269.72	270.12	270.38	272.00	270.72	270.75
3.....	271.56	269.31	267.10	269.05	268.85	269.65	269.65	269.90	270.30	272.15	270.75	270.80
4.....	271.01	269.06	267.68	269.05	269.25	270.05	269.60	269.90	270.28	272.05	270.78	270.70
5.....	271.36	268.91	268.75	269.00	269.35	269.90	269.68	270.32	270.40	272.20	270.70	270.52
6.....	270.76	267.91	268.90	268.90	269.10	269.95	269.72	270.4	270.08	272.35	271.05	270.50
7.....	270.76	269.21	269.02	268.75	269.10	269.80	269.75	270.00	270.10	272.38	271.05	270.48
8.....	270.56	269.01	268.80	268.75	269.00	269.75	270.25	269.85	270.10	272.65	270.85	270.02
9.....	270.46	268.66	268.70	269.25	269.00	269.75	270.22	270.00	270.22	272.55	270.85	271.48
10.....	270.56	268.86	268.70	269.05	269.15	270.30	270.30	269.80	270.00	272.35	270.72	271.85
11.....	270.46	268.81	267.70	269.10	268.92	269.55	269.90	269.68	269.98	272.32	270.52	271.82
12.....	270.41	268.66	269.50	269.20	269.50	270.10	269.90	270.15	270.55	272.25	270.65	271.62
13.....	270.31	268.10	269.57	269.35	269.30	270.00	269.68	269.60	270.98	271.90	270.65	271.85
14.....	270.41	268.81	269.35	269.15	269.20	269.75	269.55	269.60	271.30	271.90	270.42	271.85
15.....	270.66	268.91	269.40	268.70	268.85	270.10	269.85	269.50	271.35	271.65	270.50	271.60
16.....	270.61	268.6	269.30	269.35	268.88	269.80	269.95	269.50	271.12	271.65	270.48	271.55
17.....	270.56	268.75	268.15	268.80	269.30	270.50	269.75	269.28	271.30	271.55	270.32	271.72
18.....	270.16	268.25	267.72	268.78	269.05	269.10	269.52	269.20	271.48	271.62	270.42	271.30
19.....	270.31	268.58	269.35	269.05	269.45	269.15	269.50	269.02	271.05	271.75	270.30	270.02
20.....	269.91	268.52	269.25	268.45	267.65	269.10	269.58	269.10	271.20	271.65	270.30	271.08
21.....	267.81	268.80	269.35	269.30	269.00	269.45	269.50	269.10	271.08	271.70	270.40	271.15
22.....	270.01	268.75	269.00	268.75	269.20	269.25	270.15	269.28	271.12	271.85	270.60	271.10
23.....	269.76	268.00	269.35	269.38	269.48	269.55	269.98	269.25	271.28	271.65	270.75	271.2
24.....	269.81	268.02	267.68	269.45	269.10	269.32	269.95	269.48	272.18	271.30	270.78	271.30
25.....	269.96	268.12	268.40	269.20	269.35	269.68	269.90	269.23	272.78	271.02	270.55	271.08
26.....	269.71	268.65	268.80	269.05	269.25	269.82	269.72	269.65	272.60	271.10	270.75	270.92
27.....	269.71	268.60	268.75	269.10	269.15	269.48	269.88	269.90	272.55	271.15	270.55	271.18
28.....	269.66	268.20	268.92	269.10	269.60	269.52	269.40	270.12	272.45	271.00	270.42	271.38
29.....	269.36	268.95	269.05	269.25	269.15	269.4	69.82	.....	272.42	270.80	270.65	271.58
30.....	269.31	268.72	268.85	269.50	269.82	269.70	269.80	.....	272.30	270.90	271.10	271.72
31.....	269.61	268.55	.....	269.05	.....	269.45	269.95	.....	272.25	.....	270.98	.....

LAKE ONTARIO AT MOUTH OF OSWEGO RIVER

This gaging station is located in the mouth of the Oswego river in the harbor at Oswego and indicates very closely the lake level, except during times of large flow in the Oswego river, when there will be some slight slope below the gage. It was established December, 1907, and was located on the east side of the river below Bridge street bridge, the bridge nearest the lake. The lower gage in new lock No. 8 was used until August 11, 1916. On August 11, 1916, a standard Type A gage, No. 166, was erected on the end of lower east approach wall to lock No. 8. It has a range of 4 feet, between elevations 247.0 and 251.0. A standard benchmark plug was set in the wall near the gage at elevation 249.05 (B. C. datum).

The gage was read twice daily — July 1, 1916, to June 1, 1917, at 8:00 A. M. and 4:00 P. M., June 1, 1917, to July 1, 1917, at 6:00 A. M. and 4:00 P. M.— to half-tenths.

Daily elevation of water-surface (B. C. datum) of LAKE ONTARIO AT MOUTH OF OSWEGO RIVER, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	249.22	248.68	247.98	247.25	246.78	246.40	246.28	246.35	246.30	246.95	247.45	247.78
2.....	249.30	248.65	248.00	247.20	246.75	246.50	246.22	246.35	246.15	246.90	247.72	247.80
3.....	249.30	248.75	247.92	247.15	246.85	246.38	246.12	246.75	246.05	247.12	247.62	247.72
4.....	249.30	248.62	247.88	247.15	246.72	246.35	246.25	246.05	246.05	247.22	247.50	247.80
5.....	249.28	248.58	247.95	247.15	246.75	246.52	246.22	246.42	246.25	247.08	247.48	247.70
6.....	249.28	248.58	247.90	247.12	246.75	246.80	246.45	246.38	246.20	247.38	247.60	247.80
7.....	249.20	248.50	247.82	247.05	246.62	246.52	246.48	246.12	246.00	247.58	247.60	247.92
8.....	249.25	248.58	247.78	247.02	246.70	246.25	246.50	246.10	246.05	247.48	247.58	247.80
9.....	249.15	248.65	247.78	247.08	246.65	246.32	246.25	246.35	246.20	247.72	247.58	247.88
10.....	249.15	248.52	247.85	247.02	246.72	246.48	246.35	246.72	246.05	247.72	247.62	248.05
11.....	249.08	248.38	247.60	247.00	246.68	246.45	246.50	246.50	246.02	247.48	247.58	248.10
12.....	249.18	248.60	247.62	246.95	246.65	246.50	246.45	247.05	246.2	247.52	247.58	248.02
13.....	249.08	248.68	247.65	246.98	246.62	246.45	246.40	246.65	246.18	247.58	247.52	248.30
14.....	249.05	248.58	247.58	246.92	246.72	246.55	246.52	246.50	246.15	247.48	247.60	248.00
15.....	248.95	248.35	247.62	246.92	246.62	246.35	246.25	246.45	246.45	247.45	247.52	248.22
16.....	249.02	248.38	247.70	246.82	246.60	246.52	246.48	246.50	246.30	247.45	247.72	248.28
17.....	249.02	248.35	247.55	247.10	246.58	246.40	246.50	246.30	246.22	247.48	247.55	248.30
18.....	249.05	248.32	247.60	246.75	246.55	246.32	246.55	246.08	246.45	247.45	247.50	248.22
19.....	248.88	248.32	247.62	246.75	246.52	246.40	246.32	246.05	246.45	247.50	247.50	248.10
20.....	248.95	248.18	247.60	246.70	246.50	246.10	246.32	246.25	246.50	247.42	247.45	248.22
21.....	248.90	248.18	247.45	246.78	246.48	246.28	246.02	246.10	246.40	247.62	247.45	248.22
22.....	248.95	248.22	247.35	246.88	246.42	246.65	246.55	246.20	246.40	247.62	247.45	248.20
23.....	248.88	248.18	247.42	246.80	246.38	246.45	246.38	245.85	246.50	247.65	247.65	248.15
24.....	248.85	248.20	247.45	246.88	246.50	246.40	246.25	246.10	246.72	247.52	247.60	248.30
25.....	248.85	248.28	247.42	246.82	246.58	246.50	246.18	246.48	246.62	247.42	247.68	248.20
26.....	248.80	248.18	247.35	246.90	246.40	246.35	246.25	245.98	246.68	247.52	247.68	248.18
27.....	248.85	248.18	247.30	246.78	246.32	246.35	246.20	246.15	246.85	247.58	247.58	248.22
28.....	248.78	248.05	247.28	246.82	246.40	246.40	246.10	246.18	247.05	247.52	247.60	248.30
29.....	248.80	248.05	247.22	246.75	246.35	246.30	246.15	.....	247.02	247.42	247.65	248.38
30.....	248.78	248.00	247.22	246.75	246.45	246.25	246.35	.....	247.02	247.52	247.78	248.35
31.....	248.78	247.95	.....	246.80	.....	246.30	246.15	.....	246.92	.....	247.68	.....

SENECA RIVER BASIN

DESCRIPTION

Seneca river receives the drainage from the central group of lakes lying southward from Lake Ontario, known as the finger lakes. The drainage basin is rolling, though not precipitous, excepting for the deep narrow valleys crossing it, in which the lakes are situated, and certain additional valleys not at the present time occupied by lakes. All of the lakes properly belonging to the finger lake system do not drain into the Seneca river. Oneida lake on the east is tributary to Oneida river, while on the west of the Seneca river there is a series of lakes, including Honeoye, Canadice, Hemlock and Conesus lakes, smaller than, but parallel with and otherwise similar to the main finger lakes, which are tributary to Genesee river. The upper lakes of the system in the Seneca river basin are Onondaga, Otisco, Skaneateles, Owasco, Cayuga, Seneca, Keuka and Canandaigua lakes.

For table of drainage areas see page 64.

SENECA RIVER

DESCRIPTION

The stream designated as Seneca river originates at the outlet of Seneca lake, flows easterly into the foot of Cayuga lake and then northerly through the extensive Montezuma marshes to a point near Savannah, where it leaves the broad marsh area and turns easterly, passing to the north of Syracuse and receiving Onondaga outlet, then turning northerly and joining Oneida river at Three River Point to form the Oswego river. This river has been canalized for the Barge canal throughout its entire length. The construction of five dams and the necessary dredging has resulted in a series of navigable pools having low navigable water-surfaces referred to Barge canal datum as follows:

Above Three River Point due to the dam at Phoenix on the Oswego river, Elev. 363.0; above Baldwinsville, Elev. 374.0; above foot of Cayuga lake, Elev. 381.5; above Seneca Falls, Elev. 430.5; above Waterloo, Elev. 445.0.

The most important tributaries of Seneca river are the outlets of Onondaga, Otisco, Skaneateles and Owasco lakes, and Clyde river, which enters the Seneca river near Clyde and which in turn is formed by the junction of Ganargua creek, often called Mud creek, and Canandaigua outlet at Lyons.

The following tables show the daily elevation of water-surface at different gages maintained on Seneca river during the year ended June 30, 1917, exclusive of those on Seneca and Cayuga lakes, which are given separately.

SENECA RIVER ABOVE DAM, WATERLOO

This station is located above the new Barge canal lock No. 4, in the village of Waterloo. The new dam, or regulating works, consisting of six Taintor gates, each having a clear span of 36 feet, three with sills at elevation 439.0 and three at elevation 435.0, is located immediately below and replaces the old fixed dam. The three larger openings can pass water only to the power-plant of the Tracy Development Company. The low navigable surface above this dam is elevation 245.0.

The concrete staff gage in the upper end of the lock is read twice daily to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER ABOVE DAM AT WATERLOO, for the year ended June 30, 1917

DAY	June	DAY	June	DAY	June
1.....	11.....	.....	21.....	445.8
2.....	12.....	.....	22.....	445.85
3.....	13.....	.....	23.....	445.75
4.....	14.....	.....	24.....	446.15
5.....	15.....	.....	25.....	445.95
6.....	16.....	.....	26.....	445.85
7.....	17.....	445.75	27.....	445.9
8.....	18.....	445.45	28.....	446.0
9.....	19.....	445.55	29.....	446.1
10.....	20.....	446.75	30.....	446.3

NOTE.— The record at this gage from July 1, 1916, to June 16, 1917, inclusive, is not available.

SENECA RIVER BELOW LOCK No. 4, WATERLOO

This station is located just below the new Barge canal lock No. 4, in the village of Waterloo.

The concrete staff gage in the lower end of the lock is read. The water-surface indicated is that of the Seneca river about 2,000 feet above the gage formerly read below old lock No. 2 at the junction of the old canal and the river.

The gage is read twice daily to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER BELOW LOCK No. 4, WATERLOO, for the year ended June 30, 1917

DAY	June	DAY	June	DAY	June
1.....		11.....		21.....	429.75
2.....		12.....		22.....	429.45
3.....		13.....		23.....	429.75
4.....		14.....		24.....	429.1
5.....		15.....		25.....	429.6
6.....		16.....		26.....	429.75
7.....		17.....	428.85	27.....	430.65
8.....		18.....	429.75	28.....	430.35
9.....		19.....	429.95	29.....	430.55
10.....		20.....	429.75	30.....	430.1

NOTE.—The record at this gage from July 1, 1916, to June 16, 1917, inclusive, is not available

SENECA RIVER ABOVE DAM AT SENECA FALLS

This station, established June 17, 1917, is located above the dam at Seneca Falls. This dam was built to maintain a low water-surface at elevation 430.5.

The concrete staff gage at the upper end of lock No. 3 is read twice daily — at 9:00 A. M. and 4:00 P. M.— to half-tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER ABOVE DAM AT SENECA FALLS, for the year ended June 30, 1917

DAY	June	DAY	June	DAY	June
1.....		11.....		21.....	429.92
2.....		12.....		22.....	429.38
3.....		13.....		23.....	429.50
4.....		14.....		24.....	429.12
5.....		15.....		25.....	429.65
6.....		16.....		26.....	430.22
7.....		17.....	428.85	27.....	430.85
8.....		18.....	429.75	28.....	430.33
9.....		19.....	430.00	29.....	430.28
10.....		20.....	430.45	30.....	429.72

SENECA RIVER AT FREE BRIDGE

This station was established January 1, 1915, and is located at the highway bridge across the Seneca river on the highway leading east from Seneca Falls and about 5 miles distant therefrom, and about 1 mile north, or downstream from Barge canal lock No. 1 of the Cayuga and Seneca canal at the foot of Cayuga lake.

The gage is a direct-reading staff, read twice daily to tenths with occasional half-tenth readings.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT FREE BRIDGE,
NEAR CAYUGA, for the year ended June 30, 1917. C. D. Martin, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	382.8	379.5	378.4	376.5	375.8	376.4	376.2	376.2	376.95	376.45	376.3	377.05
2.....	382.65	379.05	378.4	376.3	375.9	376.32	376.2	376.3	376.75	376.8	377.0	377.0
3.....	382.35	378.75	378.55	376.0	375.82	376.15	376.18	376.3	376.7	377.08	376.22	377.0
4.....	382.0	378.55	378.45	376.0	375.7	376.5	376.1	376.4	376.6	377.25	376.3	377.0
5.....	381.65	378.4	378.55	376.0	375.7	376.3	376.0	376.3	376.35	377.1	376.3	377.0
6.....	381.4	378.5	378.4	375.9	375.7	376.15	376.15	376.3	376.3	377.5	376.5	377.0
7.....	381.85	378.65	378.55	375.9	375.75	376.2	376.58	376.3	376.15	379.45	376.5	377.75
8.....	382.2	378.8	378.4	375.9	375.7	376.2	376.48	376.2	376.0	379.65	376.4	379.6
9.....	382.3	378.8	378.5	376.0	375.7	376.2	376.4	376.3	376.0	379.25	376.3	379.75
10.....	382.3	378.9	378.62	376.0	375.7	376.2	376.3	376.3	376.1	378.5	376.3	379.6
11.....	382.3	378.8	378.65	376.0	375.7	376.1	376.2	376.3	376.7	378.2	376.4	380.0
12.....	382.3	378.7	378.55	376.0	375.85	376.2	376.1	376.2	377.8	377.9	376.5	380.35
13.....	382.35	378.8	378.4	376.0	376.4	376.2	376.0	376.1	378.55	378.3	376.4	380.0
14.....	382.3	378.75	378.4	375.9	376.4	376.2	376.1	375.9	378.6	378.3	376.4	379.45
15.....	382.15	378.5	378.6	375.9	376.4	376.1	376.1	375.8	378.6	378.35	376.4	378.95
16.....	381.95	378.5	378.5	376.0	376.4	376.1	376.1	375.7	378.75	378.75	376.4	378.65
17.....	381.75	378.4	378.5	376.0	376.4	376.1	376.1	375.6	378.0	378.2	376.4	378.45
18.....	381.55	378.4	378.5	376.0	376.4	376.2	376.1	375.5	378.0	378.45	376.4	378.35
19.....	381.5	378.4	378.6	376.0	376.4	376.2	376.7	375.4	377.95	378.85	376.4	378.4
20.....	381.4	378.4	378.5	376.0	376.4	376.1	376.5	375.3	377.75	378.7	376.48	378.5
21.....	381.4	378.4	378.5	376.0	376.4	376.2	376.5	375.4	377.58	378.0	376.6	378.6
22.....	381.3	378.55	378.5	376.0	376.4	376.2	376.5	375.4	377.5	378.9	376.7	378.45
23.....	381.4	378.8	378.4	376.0	376.4	376.2	376.5	375.4	377.75	376.7	376.85	378.35
24.....	381.25	378.8	378.4	375.9	376.4	376.2	376.1	375.4	378.1	376.5	376.9	378.55
25.....	381.3	378.7	378.4	375.8	376.4	376.2	376.0	375.4	378.4	376.4	376.9	378.75
26.....	381.2	378.7	378.4	375.8	376.5	376.2	376.1	375.5	378.3	376.4	377.0	379.15
27.....	380.6	378.6	378.5	375.8	376.45	376.2	376.1	375.9	378.15	376.4	376.9	379.95
28.....	379.35	378.6	378.35	375.9	376.5	376.2	376.1	376.7	378.1	376.4	376.82	380.45
29.....	380.1	378.6	376.75	375.9	376.5	376.2	376.35	.....	378.45	376.4	377.0	380.3
30.....	380.2	378.6	376.55	375.9	376.5	376.2	376.5	.....	378.05	376.4	377.35	380.48
31.....	380.15	378.55	.....	375.8	.....	376.2	376.35	.....	376.9	.....	377.25	.....

SENECA RIVER AT SAVANNAH

This station is located at the N. Y. C. R. R. bridge crossing the Seneca river about $1\frac{1}{4}$ miles west of Fox Ridge station and about 2 miles east of Savannah. It was established May 4, 1904, and is read twice daily — at 7 A. M. and 5 P. M. — to half-tenths, to determine water-surface elevations only.

The present gage is a standard chain gage located at the middle of the downstream side of the upstream bridge.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT N. Y. C. R. R. BRIDGE, NEAR FOX RIDGE, SAVANNAH P. O., for the year ended June 30, 1917.
A. C. Carr, Observer

DAY	July	Aug.	Sept.	DAY	July	Aug.	Sept.
1.....	381.02	378.12	377.65	16.....	379.90	377.65	377.70
2.....	380.85	377.92	377.68	17.....	379.80	377.60	377.70
3.....	380.65	377.75	377.75	18.....	379.60	377.60	377.70
4.....	380.38	377.72	377.65	19.....	379.55	377.60	377.70
5.....	380.20	377.80	377.65	20.....	379.50	377.60	377.70
6.....	379.65	377.80	377.65	21.....	379.50	377.60	377.70
7.....	379.90	377.80	377.65	22.....	379.40	377.68	377.70
8.....	380.20	377.80	377.68	23.....	379.32	377.82	377.70
9.....	380.30	377.85	377.70	24.....	379.30	377.85	377.70
10.....	380.35	377.85	377.70	25.....	379.30	377.75	377.70
11.....	380.38	377.82	377.70	26.....	379.28	377.75	377.70
12.....	380.40	377.80	377.62	27.....	379.12	377.75	377.70
13.....	380.40	377.80	377.60	28.....	378.12	377.70	377.08
14.....	380.40	377.72	377.55	29.....	378.45	377.70	.....
15.....	380.38	377.70	377.68	30.....	378.50	377.78	.....
				31.....	378.25	377.88	.....

NOTE.— Due to the cutting through of the Barge canal land-line near this point, the water-surface fell below the gage on September 29 and this station was abandoned. A new station was established at Toll Road bridge, Montesuma.

SENECA RIVER AT TOLL ROAD BRIDGE, MONTEZUMA

This station, established October 1, 1916, is located at the Toll Road bridge over Seneca river, about $2\frac{3}{4}$ miles south, or upstream from the old N. Y. C. R. R. bridge over Seneca river at Fox Ridge, near Savannah, and supersedes the station at that point. The gage, No. 203, is a staff secured to the downstream side of the boat-house a short distance above the bridge.

The gage is read twice daily—morning and afternoon—to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT TOLL ROAD BRIDGE, MONTEZUMA, for the year ended June 30, 1917. Fred. S. Traver, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1				*	373.4	375.3	375.15	375.5	376.32	*	375.7	376.5
2				374.6	373.15	375.2	375.1	375.6	376.25	376.4	375.5	376.4
3				374.5	372.7	*	375.0	375.5	376.1	376.8	375.5	*
4				374.3	372.5	375.5	375.0	*	*	376.8	375.4	376.35
5				374.15	*	375.05	374.8	375.7	375.85	376.7	375.6	376.2
6				373.9	372.6	374.9	375.0	375.6	375.5	377.1	375.7	376.35
7				373.8	372.5	375.0	*	*	375.5	378.4	375.9	376.8
8				*	372.35	375.0	375.6	375.4	375.5	379.1	375.8	376.5
9				373.95	372.1	374.95	375.5	375.35	375.5	378.7	375.75	379.1
10				373.9	372.0	*	375.4	375.3	375.4	378.0	375.6	*
11				373.8	371.9	375.05	375.25	*	*	377.65	375.5	379.7
12				373.65	*	374.95	375.1	375.5	377.3	377.25	375.5	379.7
13				373.3	372.85	374.85	375.1	375.5	378.06	377.45	375.6	379.55
14				373.25	373.1	374.75	*	375.45	378.1	377.5	375.6	379.0
15				*	373.3	374.8	375.25	375.4	377.75	*	375.6	378.45
16				373.55	373.25	374.7	375.05	375.4	377.45	377.55	375.55	378.1
17				373.6	373.55	*	374.9	375.4	377.4	378.1	375.55	*
18				373.55	373.7	375.05	374.8	*	*	378.05	375.45	377.7
19				373.6	*	375.0	375.5	374.6	377.5	377.95	375.45	377.7
20				373.6	374.35	374.9	375.5	374.45	377.15	378.05	*	377.8
21				373.6	374.5	374.75	*	374.25	377.0	377.9	375.9	377.9
22				*	374.6	374.7	375.7	374.1	377.0	*	376.0	377.8
23				373.8	374.7	375.0	375.6	373.85	377.1	376.15	376.1	377.7
24				373.65	374.75	*	375.2	373.7	377.5	*	375.85	376.1
25				373.55	374.9	375.2	375.15	*	*	375.65	376.1	378.1
26				373.5	375.1	375.15	375.1	373.8	377.85	375.55	376.0	378.15
27				373.35	375.25	375.1	375.1	374.2	377.65	375.5	*	379.2
28				373.4	375.2	375.1	*	375.8	377.55	376.5	376.05	379.55
29				*	375.2	375.2	375.3	376.3	377.7	*	376.25	379.55
30				373.6	375.3	375.2	375.3	375.3	377.45	376.8	376.6	379.8
31				373.55	.....	*	375.4	.....	376.7	.....	376.65	.....

* Sunday. a No record.

SENECA RIVER AT MOSQUITO POINT

This station, established April 21, 1904, is located on the Seneca river at Mosquito Point highway bridge about 3 miles north of Port Byron village and just below the confluence of Owasco outlet and the Seneca river. The standard chain gage, located on the upstream side of the span adjacent to the left bank of Seneca river was superseded on October 10, 1916, by a standard Type A gage. This gage, No. 202, is secured to the east end of the south abutment of Mosquito Point bridge and has a range of 16 feet, between elevations 371.0 and 387.0. The gage benchmark is a brass pin in concrete, east end of east wing wall, south abutment of bridge over canal, and is at elevation 387.304 (B. C. datum).

The gage is read once daily — at 9 A. M. — to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT MOSQUITO POINT BRIDGE, PORT BYRON, for the year ended June 30, 1917. William Prettie, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	377.9	375.4	373.8	373.6	372.3	374.9	374.9	375.1	375.7	376.0	375.5	376.1
2.....	377.7	375.1	373.7	374.1	372.2	374.9	374.8	375.1	375.8	376.0	375.3	376.0
3.....	377.6	374.9	373.7	374.0	372.0	375.0	374.8	375.1	375.8	376.3	376.2	376.9
4.....	377.5	374.8	373.9	373.7	371.9	375.1	374.7	375.2	375.6	376.6	376.2	376.9
5.....	377.3	374.6	373.9	373.5	371.9	374.9	374.6	375.2	375.4	376.8	376.2	376.8
6.....	376.9	374.8	373.8	373.3	372.1	374.7	374.7	375.2	375.3	376.3	375.4	375.8
7.....	376.6	374.9	373.5	373.1	372.0	374.7	375.1	375.1	375.1	377.4	375.6	376.2
8.....	376.7	374.9	373.5	372.9	371.8	374.6	375.3	375.1	375.1	376.1	375.6	377.2
9.....	376.9	374.8	373.3	373.1	371.6	374.6	375.2	375.0	375.2	376.1	375.4	376.0
10.....	377.1	374.7	373.4	373.0	371.5	374.6	375.1	375.0	375.2	377.5	376.3	376.2
11.....	377.1	374.8	373.8	372.8	371.3	374.8	375.0	375.0	375.4	377.1	375.2	376.2
12.....	377.1	374.8	373.7	372.6	371.3	374.7	374.8	375.1	376.4	377.0	375.2	376.6
13.....	377.1	374.8	373.4	372.4	371.9	374.6	374.8	375.1	377.2	376.7	375.3	376.7
14.....	377.2	374.9	373.1	372.2	372.3	374.6	374.9	375.1	377.5	376.8	375.3	376.3
15.....	377.2	374.7	373.0	372.1	372.5	374.5	375.0	374.9	377.2	376.8	375.3	377.8
16.....	376.9	374.5	372.9	372.5	372.6	374.5	374.9	374.8	376.9	376.8	375.2	377.5
17.....	376.8	374.4	372.9	372.3	372.8	374.5	374.8	374.7	376.9	377.1	375.2	377.2
18.....	376.7	374.2	373.3	372.3	373.0	374.7	374.6	374.5	376.9	377.3	376.2	377.1
19.....	376.6	374.1	373.3	372.4	373.3	374.7	374.8	374.5	376.8	377.2	375.2	377.0
20.....	376.5	374.1	373.0	372.4	373.8	374.6	375.1	374.3	376.6	377.2	375.3	377.0
21.....	376.4	374.4	373.0	372.5	374.0	374.4	375.2	374.1	376.5	377.2	375.5	377.2
22.....	376.4	374.2	372.8	372.5	374.1	374.3	375.3	373.9	376.5	376.4	375.6	377.1
23.....	376.4	374.2	372.8	372.9	374.2	374.1	375.2	373.6	376.7	376.0	375.6	377.1
24.....	376.4	374.2	372.8	372.9	374.3	374.2	374.9	373.4	377.0	376.7	375.7	377.0
25.....	376.3	374.1	373.2	372.8	374.3	374.6	374.8	373.3	377.3	376.4	375.7	377.3
26.....	376.3	374.0	373.0	372.5	374.6	374.7	374.8	373.4	377.4	375.3	375.6	377.4
27.....	375.9	374.3	373.0	372.4	374.8	374.8	374.8	373.8	377.2	375.2	375.6	378.1
28.....	375.8	374.4	372.8	372.3	374.7	374.8	374.8	374.9	377.0	375.2	375.6	378.6
29.....	375.4	374.2	373.3	372.3	374.8	374.8	375.0	.....	377.1	375.3	375.8	378.6
30.....	375.6	374.0	373.5	372.7	374.9	374.8	375.0	.....	377.0	375.5	376.0	378.8
31.....	375.8	373.9	.....	372.5	.....	374.9	375.0	.....	376.4	.....	376.2	.....

SENECA RIVER AT CROSS LAKE

This station, established May 1, 1904, is located at the highway bridge across the Seneca river about 1 mile above the entrance of the Seneca river into Cross lake and about 3 miles northwest of the village of Jordan. The gage, a staff, on a boat-house on the east, or right bank of the river just above the bridge, was superseded on November 13, 1916, by a standard chain gage, No. 201, placed on top of east railing of south span of Jordan highway bridge, above Cross lake, having a range of 12 feet, between elevations 371.0 and 383.0. The gage bench-mark is the northwest corner of concrete well slab in front of hotel on east side of river and is at elevation 393.62 (B. C. datum).

The gage is read twice daily — at 7 A. M. and 2 P. M. — to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT CROSS LAKE JORDAN, for the year ended June 30, 1917. M. Quimby, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	377.35	375.25	373.7	373.55	372.4	374.8	374.7	374.8	376.25	375.8	375.3	375.85
2.....	377.2	375.0	373.6	374.1	372.2	374.8	374.7	374.8	375.5	375.8	375.15	375.7
3.....	377.15	374.8	373.75	373.9	372.1	374.8	374.6	374.9	375.3	376.05	375.0	375.6
4.....	376.9	374.6	373.9	373.7	371.9	374.9	374.5	375.0	375.3	376.2	374.9	375.6
5.....	376.75	374.6	373.9	373.45	372.0	374.8	374.5	375.1	375.25	376.1	375.05	375.6
6.....	376.55	374.7	373.75	373.2	372.1	374.7	374.55	374.95	375.1	376.15	375.25	375.6
7.....	376.2	374.7	373.5	373.0	372.0	374.5	375.0	374.9	374.9	376.9	375.4	375.85
8.....	376.35	374.7	373.3	373.2	371.9	374.5	375.2	374.8	374.9	377.45	375.3	376.65
9.....	376.55	374.7	373.2	373.1	371.7	374.5	375.1	374.8	374.9	377.55	375.2	377.4
10.....	376.6	374.65	373.45	372.95	371.65	374.5	374.95	374.8	374.9	377.2	375.1	377.6
11.....	376.6	374.6	373.7	372.8	371.5	374.5	374.7	374.8	375.1	376.65	375.0	377.7
12.....	376.7	374.6	373.6	372.6	371.45	374.5	374.6	374.8	375.8	376.55	375.1	377.9
13.....	376.7	374.7	373.4	372.35	371.8	374.6	374.6	374.9	376.45	376.3	375.1	377.95
14.....	376.8	374.75	373.2	372.2	372.05	374.4	374.7	374.85	376.7	376.3	375.1	377.7
15.....	376.65	374.55	373.0	372.25	372.3	374.3	374.8	374.8	376.7	376.5	375.1	377.25
16.....	376.45	374.3	372.9	372.5	372.4	374.3	374.7	374.8	376.55	376.5	375.0	377.0
17.....	376.3	374.2	373.0	372.4	372.65	374.3	374.55	374.65	376.5	376.6	375.0	376.65
18.....	376.3	374.1	373.3	372.35	372.9	374.3	374.45	374.45	376.6	376.8	375.0	376.6
19.....	376.2	374.1	373.2	372.4	373.25	374.3	374.6	374.3	376.55	376.7	375.0	376.5
20.....	376.2	374.1	373.1	372.4	373.6	374.3	374.8	374.16	376.35	376.8	375.15	376.6
21.....	376.1	374.1	372.9	372.5	373.7	374.15	374.9	373.85	376.2	376.75	375.4	376.75
22.....	376.0	374.0	372.8	372.65	373.9	374.05	375.0	373.8	376.2	376.2	375.4	376.65
23.....	376.0	374.0	372.8	372.9	374.0	373.8	374.9	373.65	376.25	375.75	375.5	376.55
24.....	376.0	374.0	372.95	372.9	374.2	374.05	374.8	373.4	376.65	375.35	375.6	376.55
25.....	375.95	374.0	373.15	372.75	374.3	374.4	374.6	373.2	376.9	375.1	375.45	376.8
26.....	375.9	374.0	372.9	372.6	374.4	374.6	374.6	373.25	377.0	375.1	375.4	376.85
27.....	375.75	374.1	372.9	372.35	374.6	374.6	374.6	373.6	376.85	375.1	375.4	377.45
28.....	375.45	374.2	372.85	372.2	374.6	374.6	374.7	374.5	376.65	375.1	375.4	377.9
29.....	375.3	374.05	372.2	372.3	374.6	374.6	374.8	.....	376.7	375.1	375.55	378.0
30.....	375.4	373.9	373.2	372.7	374.7	374.6	374.75	.....	376.5	375.3	375.8	378.1
31.....	375.45	373.85	.....	372.5	.....	374.6	374.8	.....	376.05	.....	375.9	.....

SENECA RIVER AT JACK'S REEF

This station, established April 20, 1904, is located on the Seneca river about 2 miles downstream from Cross lake and about

1,700 feet below what is commonly known as State Ditch bridge across the canal cut-off on the road leading from the village of Jack's Reef, near Memphis. The gage, a vertical staff fastened to a tree on the left bank of the stream, was superseded on November 13, 1916, by a standard chain gage, No. 200, placed at the center of the State Ditch bridge on top of north railing, and has a range of 12 feet, between elevations 371.0 and 383.0. The gage bench-mark is top of plug in concrete monument 150 feet west of gage at elevation 394.65 (B. C. datum).

The gage is read once daily — at 9 A. M. — to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT FOOT OF JACK'S REEF, MEMPHIS, for the year ended June 30, 1917. Wm. H. Burns, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	377.0	375.3	373.5	373.5	372.2	374.8	374.7	374.8	375.1	375.9	375.3	375.7
2.....	376.9	375.1	373.4	373.9	372.1	374.8	374.6	374.8	375.2	375.6	375.2	375.6
3.....	376.9	374.9	373.6	373.8	371.9	374.9	374.6	374.7	375.3	375.9	375.1	375.5
4.....	376.7	374.7	373.7	373.6	371.7	374.9	374.5	374.7	375.4	376.0	375.0	375.4
5.....	376.5	374.6	373.6	373.3	371.9	374.8	374.4	374.8	375.3	375.9	374.9	375.4
6.....	376.2	374.8	373.5	373.0	372.0	374.6	374.5	374.8	375.1	375.9	375.1	375.4
7.....	376.0	374.8	373.4	372.8	371.9	374.4	374.8	374.7	374.9	376.5	375.3	375.5
8.....	376.1	374.7	373.3	372.9	371.7	374.5	375.1	374.7	374.9	377.2	375.3	376.4
9.....	376.2	374.5	373.2	373.0	371.5	374.5	375.0	374.6	374.9	377.3	375.2	377.1
10.....	376.3	374.5	373.4	372.9	371.4	374.6	374.8	374.6	374.8	376.8	375.2	377.3
11.....	376.3	374.5	373.6	372.7	371.3	374.6	374.8	374.8	375.1	376.5	375.1	377.5
12.....	376.3	374.5	373.4	372.3	371.2	374.5	374.7	374.8	375.7	376.4	375.0	377.6
13.....	376.5	374.7	373.2	372.1	371.5	374.5	374.6	374.7	376.2	376.1	375.0	377.6
14.....	376.5	374.8	373.0	371.9	371.9	374.5	374.7	374.7	376.5	376.2	375.1	377.4
15.....	376.5	374.6	372.9	372.1	372.2	374.4	374.7	374.7	376.5	376.3	375.0	377.1
16.....	376.4	374.4	372.8	372.3	372.3	374.4	374.6	374.6	376.3	376.4	374.9	376.7
17.....	376.3	374.2	373.0	372.2	372.5	374.5	374.5	374.6	376.4	376.5	374.9	376.5
18.....	376.2	374.1	373.2	372.1	372.8	374.5	374.4	374.5	376.5	376.5	374.9	376.5
19.....	376.0	374.0	373.0	372.1	372.9	374.4	374.5	374.4	376.3	376.5	374.9	376.4
20.....	376.0	374.2	372.8	372.2	373.6	374.4	374.8	374.2	376.2	376.5	375.0	376.4
21.....	376.0	374.4	372.6	372.3	373.8	374.3	374.9	374.0	376.1	376.4	375.3	376.5
22.....	375.9	374.1	372.5	372.5	373.9	374.3	375.1	373.7	376.0	376.0	375.4	376.5
23.....	375.9	373.9	372.6	372.7	374.1	374.2	374.9	373.5	376.1	375.6	375.4	376.4
24.....	375.9	373.9	372.8	372.7	374.3	374.1	374.7	373.3	376.4	375.3	375.4	376.5
25.....	375.8	373.8	373.1	372.6	374.4	374.3	374.7	373.2	376.6	375.1	375.4	376.7
26.....	375.8	373.8	372.9	372.4	374.5	374.6	374.6	373.3	376.7	375.0	375.4	377.1
27.....	375.7	374.1	372.8	372.2	374.6	374.5	374.6	373.5	376.6	375.0	375.4	377.5
28.....	375.5	374.2	372.6	372.2	374.7	374.5	374.6	374.5	376.5	375.0	375.3	377.6
29.....	375.2	373.9	373.0	372.2	374.7	374.6	374.7	.....	376.5	375.2	375.4	377.6
30.....	375.4	373.8	373.2	372.5	374.7	374.6	374.7	.....	376.4	375.3	375.6	377.7
31.....	375.4	373.6	.....	372.3	.....	374.6	374.7	.....	376.3	.....	375.7	.....

SENECA RIVER ABOVE DAM, BALDWINSVILLE

This station, located above the dam in the Seneca river at Baldwinsville 12.5 miles above the confluence of the Seneca and Oneida rivers at Three River Point, was established November 12, 1898, by the United States Deep Waterways Survey, and is now maintained by this Department.

At Baldwinsville the old dam, crest elevation 372.28, has been raised in connection with the construction of the Barge canal by the addition of an ogee concrete crest having a total length of 352 feet at elevation 374.0, and an automatic sluice-gate having a clear opening 50 feet wide designed to open as the water-surface above the dam rises, has replaced the necessary amount of old crest at the north end of the dam.

The gage, a staff located on the upper approach wall to lock No. 24, was replaced on August 26, 1916, by a standard Type B gage, No. 199, secured to the west end of the north retaining wall above lock No. 24, and having a range of 12 feet, between elevations 369.0 and 381.0. A standard bench-mark plug was set in the face of the wall near the gage at elevation 378.0 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 4 P. M.—to half-tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER ABOVE DAM AT BALDWINVILLE, for the year ended June 30, 1917. Timothy Cronin and H. C. Fay, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	376.12	374.80	373.30	373.45	371.85	374.50	374.48	374.60	374.85	375.28	375.00	375.80
2.....	376.20	374.68	373.20	373.70	371.65	374.50	374.35	374.58	374.95	375.22	374.90	375.22
3.....	376.10	374.45	373.50	373.55	371.60	374.68	374.25	374.58	374.92	375.40	374.80	375.28
4.....	376.00	374.32	373.72	373.32	371.35	374.62	374.25	374.72	374.90	375.52	374.72	375.18
5.....	375.72	374.32	373.52	373.05	371.65	374.50	374.15	374.62	374.80	375.40	374.72	375.10
6.....	375.62	374.52	373.30	372.78	371.62	374.45	374.38	374.52	374.62	375.45	375.00	375.10
7.....	375.45	374.55	373.10	372.60	371.45	374.28	374.85	374.48	374.60	376.05	375.00	375.28
8.....	375.50	374.45	372.95	372.85	371.30	374.22	374.82	374.42	374.65	376.45	374.98	375.82
9.....	375.72	374.38	372.85	372.78	371.18	374.30	374.72	374.38	374.68	376.42	374.90	376.25
10.....	375.72	374.28	373.15	372.55	371.02	374.50	374.62	374.35	374.68	376.20	374.85	376.42
11.....	375.80	374.28	373.28	372.30	370.90	374.38	374.48	374.58	374.95	375.88	374.82	376.38
12.....	375.80	374.40	373.18	372.00	371.00	374.30	374.38	374.62	375.40	375.62	374.78	376.45
13.....	375.80	374.50	373.00	371.85	371.38	374.22	374.35	374.58	375.68	375.58	374.62	376.48
14.....	375.75	374.45	372.70	371.62	371.70	374.20	374.55	374.48	375.85	375.68	374.85	376.38
15.....	375.78	374.28	372.62	371.92	371.92	374.12	374.50	374.38	375.92	375.78	374.78	376.15
16.....	375.68	374.15	372.52	372.12	372.12	374.18	374.38	374.38	375.75	375.75	374.68	375.98
17.....	375.50	373.98	372.82	372.05	372.35	374.25	374.25	374.28	375.80	375.82	374.68	375.92
18.....	375.60	373.88	372.90	371.85	372.62	374.32	374.18	374.22	375.88	375.90	374.62	375.88
19.....	375.58	373.85	372.75	371.82	373.10	374.20	374.28	374.08	375.78	375.88	374.70	375.78
20.....	375.55	374.00	372.60	371.90	373.40	373.62	374.32	374.75	375.62	375.90	374.95	375.75
21.....	375.45	373.90	372.40	372.05	373.55	373.80	374.72	373.60	375.55	375.88	374.92	375.82
22.....	375.40	373.72	372.38	372.40	373.65	373.70	374.68	373.35	375.48	375.60	374.90	375.75
23.....	375.52	373.70	372.40	372.45	373.82	373.58	374.58	373.10	375.58	375.22	375.00	375.72
24.....	375.42	373.70	372.72	372.40	374.15	373.95	374.40	372.90	375.75	374.98	375.08	375.82
25.....	375.32	373.65	372.80	372.30	374.20	374.35	374.30	373.08	376.02	374.80	374.95	375.68
26.....	375.30	373.60	372.60	372.15	374.38	374.30	374.30	373.00	375.95	374.80	375.02	375.90
27.....	375.28	373.90	372.50	371.90	374.48	374.30	374.32	373.28	375.80	374.72	375.02	376.20
28.....	375.02	373.88	372.38	371.80	374.42	374.32	374.60	374.28	375.75	374.78	374.98	376.52
29.....	374.95	373.75	372.78	372.10	374.40	374.28	374.42	.....	375.72	374.98	375.12	376.62
30.....	375.12	373.48	373.00	372.25	374.52	374.35	374.42	.....	375.70	375.02	375.32	376.68
31.....	375.02	373.45	.....	372.05	.....	374.48	374.45	.....	375.38	.....	375.30	.....

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 97

SENECA RIVER BELOW DAM, BALDWINSVILLE

This station, located below the dam in the Seneca river at Baldwinsville, was established November 12, 1898, by the United States Deep Waterways Survey and is now maintained by this Department. The gage, a staff located on the lower approach wall to lock No. 24, was replaced on July 25, 1916, by a standard Type A gage, No. 198, in two sections. The lower section is secured to the lower north approach wall, under the Syracuse street bridge, and has a range of 8 feet, between elevations 361.0 and 369.0. The upper section is secured to the north abutment of the Syracuse street bridge and has a range of 4 feet, between elevations 369.0 and 373.0. The gage bench-mark is a square chiseled mark on the northwest concrete stair railing, lock No. 24, and is at elevation 371.94 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 4 P. M.— to half-tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER BELOW DAM AT BALDWINSVILLE, for the year ended June 30, 1917. Timothy Cronin and H. C. Fay, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	365.38	364.22	363.38	363.80	363.85	364.30	364.15	364.52	364.40	365.12	364.30	364.62
2.....	365.15	364.12	363.25	363.82	363.82	364.40	364.15	364.48	364.32	365.10	364.30	364.52
3.....	365.10	364.00	363.22	363.90	363.78	364.38	364.18	364.42	364.22	365.28	364.20	364.35
4.....	365.05	363.88	363.40	363.92	363.80	364.55	364.18	364.30	364.18	365.40	364.28	364.40
5.....	365.00	363.78	363.25	363.95	363.80	364.42	364.20	364.42	364.15	365.30	364.38	364.28
6.....	364.90	363.75	363.30	363.95	363.85	364.35	364.45	364.40	364.28	365.40	364.42	364.35
7.....	364.70	363.98	363.30	364.00	363.82	364.18	364.60	364.35	364.20	365.80	364.42	364.60
8.....	364.60	363.90	363.25	363.95	363.80	364.22	364.65	364.30	364.10	365.15	364.30	365.10
9.....	364.65	363.85	363.18	364.00	363.80	364.22	364.50	364.32	363.98	366.30	364.25	365.58
10.....	364.78	363.80	363.08	364.10	363.82	364.18	364.45	364.20	363.82	366.18	364.30	365.55
11.....	364.88	363.80	363.38	364.10	363.70	364.40	364.40	364.08	364.18	365.95	364.28	365.68
12.....	364.80	363.78	363.30	364.15	363.80	364.40	364.28	364.10	364.75	365.70	364.28	365.92
13.....	364.82	363.62	363.20	364.10	363.80	364.30	364.12	364.08	364.98	365.35	364.18	366.05
14.....	365.10	363.85	363.20	364.08	363.70	364.22	364.18	364.05	365.15	365.20	364.10	365.98
15.....	364.98	363.75	363.20	363.82	363.82	364.15	364.32	363.88	364.22	365.15	364.10	365.80
16.....	364.82	363.65	363.22	363.98	363.95	363.92	364.30	363.72	365.00	365.15	364.18	365.55
17.....	364.65	363.60	363.18	363.92	363.95	363.75	364.22	363.62	364.82	365.28	364.20	365.20
18.....	364.52	363.62	363.40	363.98	363.90	363.88	364.18	363.55	364.92	365.40	364.12	364.98
19.....	364.40	363.60	363.40	364.05	363.88	364.05	364.18	363.68	364.45	365.42	364.12	364.95
20.....	364.48	363.68	363.38	364.05	363.85	364.22	364.20	363.88	364.70	365.45	364.15	364.95
21.....	364.50	363.70	363.40	364.00	363.95	364.32	364.22	363.88	364.50	365.48	364.40	365.12
22.....	364.38	363.62	363.28	363.88	364.00	364.40	364.40	363.90	364.60	365.08	364.42	365.10
23.....	364.38	363.50	363.28	363.95	364.02	364.40	364.40	363.90	364.92	364.72	364.40	364.98
24.....	364.45	363.48	363.25	363.90	363.90	364.08	364.08	364.05	365.52	364.40	364.25	364.82
25.....	364.50	363.42	363.52	363.90	363.88	364.10	364.20	364.00	365.90	364.50	364.22	365.02
26.....	364.45	363.38	363.68	363.88	363.98	364.28	364.10	364.12	365.98	364.50	364.25	365.22
27.....	364.40	363.32	363.80	363.85	364.18	364.22	363.98	364.50	365.88	364.50	364.20	365.62
28.....	364.28	363.62	363.80	363.80	364.08	364.22	363.95	364.55	365.82	364.40	364.30	365.92
29.....	364.20	363.52	363.90	363.78	364.12	364.25	364.05	.....	365.82	364.22	364.52	366.05
30.....	364.15	363.48	363.92	363.68	364.18	364.15	364.12	.....	365.72	364.25	364.65	366.10
31.....	364.20	363.40	.....	363.82	.....	364.10	364.40	.....	365.45	.....	364.65	.....

SENECA RIVER AT MUD LOCK, NEAR LONG BRANCH

This station is located at Mud lock, No. 5, on the old Oswego canal at its junction with the Seneca river, about $\frac{1}{4}$ mile below the mouth of Onondaga outlet. The gage, a staff located on the timber approach below old Mud lock, was replaced on July 7, 1916, by a standard Type A gage, No. 197, in the same location, having a range of 12 feet, between elevations 360.0 and 372.0. A standard bench-mark plug was set in the wall near the gage at an elevation 369.0 (B. C. datum).

The gage is read once daily to tenths.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT MUD LOCK, NEAR LONG BRANCH, IIVERPOOL P. O., for the year ended June 30, 1917.
Frank Shane Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	a	363.9	363.3	363.7	363.8	364.2	363.9	364.1	363.9	365.0	364.2	364.4
2	a	363.6	363.3	363.8	363.8	364.3	363.8	364.2	363.8	365.0	364.2	364.3
3	a	363.8	363.2	363.9	363.8	364.3	363.8	364.1	363.7	365.0	364.3	364.3
4	a	363.8	363.2	363.9	363.9	364.5	363.9	364.1	363.8	365.0	364.2	364.3
5	a	363.8	363.2	363.9	363.9	364.5	363.8	364.2	363.8	365.0	364.2	364.3
6	a	363.9	363.2	363.9	363.8	364.1	363.7	364.2	363.7	365.2	364.2	364.4
7	364.5	363.8	363.2	363.9	363.8	364.1	363.9	364.3	363.7	365.5	364.2	364.5
8	364.4	363.8	363.2	364.0	363.8	364.1	363.9	364.2	363.8	365.8	364.3	364.7
9	364.4	363.9	363.3	364.1	363.8	364.1	363.8	364.2	363.9	365.9	364.3	365.2
10	364.3	363.7	363.3	364.1	363.8	364.2	363.8	364.1	363.9	365.8	364.2	365.2
11	364.2	363.7	363.3	364.1	363.9	364.3	363.9	364.0	364.1	365.7	364.2	365.2
12	364.3	363.7	363.3	364.2	363.8	364.3	363.8	364.0	364.4	365.4	364.3	365.5
13	364.4	363.7	363.3	364.2	363.8	364.3	363.8	364.0	364.7	365.4	364.2	365.5
14	364.4	363.7	363.3	364.1	363.8	364.2	364.0	363.9	364.8	365.3	364.2	365.5
15	364.3	363.7	363.3	363.8	363.9	364.0	363.9	363.9	364.8	365.1	364.2	365.4
16	364.2	363.6	363.3	363.8	363.9	363.9	363.9	364.0	364.7	365.1	364.3	365.3
17	364.1	363.6	363.3	363.9	363.9	363.8	363.4	364.0	364.6	365.1	364.2	365.0
18	364.1	363.5	363.4	363.9	363.8	363.8	364.0	363.9	364.6	365.1	364.2	364.7
19	364.1	363.5	363.4	363.9	363.8	363.8	364.0	363.8	364.5	365.2	364.2	364.7
20	364.0	363.4	363.3	363.9	363.7	363.9	364.1	363.8	364.5	365.2	364.3	364.7
21	364.0	363.5	363.3	363.8	363.7	364.2	364.0	363.8	364.3	365.2	364.3	364.8
22	364.0	363.5	363.2	363.8	363.7	364.2	364.1	363.8	364.4	365.0	364.3	364.8
23	364.0	363.5	363.2	363.9	363.7	364.1	364.2	363.8	364.7	364.8	364.2	364.9
24	364.0	363.5	363.2	363.9	363.8	363.9	364.2	363.8	364.5	364.8	364.2	364.9
25	364.1	363.4	363.4	363.9	363.8	363.9	364.2	363.7	365.6	364.7	364.3	365.0
26	364.1	363.3	363.6	363.8	363.8	363.8	364.1	363.7	365.6	364.7	364.3	365.2
27	364.0	363.2	363.8	363.8	363.8	363.8	364.1	363.8	365.6	364.5	364.2	365.3
28	364.0	363.3	363.8	363.8	363.8	363.8	364.3	363.9	365.0	364.5	364.3	365.6
29	363.9	363.4	363.8	363.8	364.0	363.7	364.2	.....	365.5	364.4	364.4	365.6
30	363.9	363.4	363.7	363.7	364.1	363.8	364.2	.....	365.5	364.3	364.5	365.6
31	363.9	363.3	.....	363.7	.....	363.9	364.1	.....	365.3	.....	364.5	.....

a No record.

SENECA RIVER AT BELGIUM

This station is located at the highway bridge across the Seneca river at Belgium. It was established April 14, 1904. The staff gage, located on the docking on the right bank of the stream, a short distance above the highway bridge, was superseded in March, 1916, by a chain gage on the new bridge.

It was read once daily — at 7 A. M., July 1 to November 15 and March 16 to June 30, and at 8 A. M., November 16 to March 15 — to hundredths of a foot.

Daily elevation of water-surface (B. C. datum) of SENECA RIVER AT HIGHWAY BRIDGE AT BELGIUM, for the year ended June 30, 1917. A. R. Gates, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	364.60	364.05	363.32	363.85	363.85	364.25	363.82	364.10	363.91	364.70	364.01	364.20
2.....	364.50	364.00	363.22	363.80	363.76	364.29	363.91	364.20	363.79	364.65	364.05	364.10
3.....	364.45	363.87	363.20	363.80	363.80	364.40	363.84	364.12	363.75	364.79	364.04	364.07
4.....	364.50	363.80	363.42	363.86	363.76	364.49	363.90	364.09	363.60	364.88	364.04	364.05
5.....	364.30	363.75	363.20	363.92	363.82	364.40	363.90	364.10	363.65	364.88	364.10	363.92
6.....	364.40	363.73	363.25	363.95	363.80	364.30	364.05	364.13	363.90	364.90	364.24	363.91
7.....	364.28	363.88	363.25	364.00	363.80	364.10	364.35	364.09	363.92	365.20	364.10	364.15
8.....	364.15	363.87	363.21	364.00	363.80	364.26	364.30	364.06	363.80	365.38	363.99	364.31
9.....	364.25	363.80	363.13	364.00	363.72	364.30	364.20	364.05	363.70	365.31	363.99	364.69
10.....	364.29	363.80	363.00	364.10	363.78	364.20	364.15	363.95	363.67	365.48	364.02	364.65
11.....	364.35	363.72	363.27	364.15	363.71	364.35	364.10	363.85	363.61	365.26	364.04	364.60
12.....	364.37	363.65	363.25	364.16	363.80	364.32	364.00	363.83	364.60	364.96	364.03	364.82
13.....	364.26	363.65	363.19	364.10	363.80	364.35	363.90	363.78	364.13	364.75	364.00	364.91
14.....	364.60	363.80	363.10	364.10	363.65	364.25	363.95	363.78	364.22	364.66	363.85	364.95
15.....	364.32	363.70	363.17	363.90	363.80	364.20	364.00	363.58	364.30	364.50	363.90	364.80
16.....	364.31	363.55	363.20	364.00	363.92	363.92	363.97	363.34	364.14	364.64	363.90	364.80
17.....	364.20	363.52	363.12	363.95	363.90	363.80	363.95	363.30	364.15	364.64	363.90	364.60
18.....	364.19	363.56	363.30	363.95	363.95	363.80	363.89	363.39	364.21	364.69	363.90	364.26
19.....	364.06	363.60	363.40	364.00	363.90	364.02	363.92	363.47	364.31	364.75	363.80	364.25
20.....	364.10	363.55	363.42	364.02	363.80	364.19	363.92	363.55	364.10	364.74	363.85	364.46
21.....	364.21	363.69	363.35	364.02	363.90	364.25	363.92	363.62	363.80	364.79	364.10	364.88
22.....	364.10	363.60	363.27	363.92	363.97	364.35	364.00	363.55	363.90	364.65	364.10	364.35
23.....	364.10	363.52	363.25	363.90	363.91	364.30	364.10	363.60	364.05	364.37	364.11	364.30
24.....	364.10	363.40	363.25	363.90	363.85	364.10	364.00	363.80	364.80	364.01	363.90	364.20
25.....	364.07	363.40	363.46	363.90	363.80	364.15	363.92	363.85	365.10	364.05	363.84	364.30
26.....	364.15	363.27	363.61	363.90	364.00	364.19	363.87	363.85	365.10	364.16	363.90	364.45
27.....	364.10	363.38	363.80	363.85	364.06	364.19	363.79	364.00	365.10	364.26	363.95	364.65
28.....	364.07	363.60	363.70	363.80	364.06	364.19	363.73	364.21	365.10	364.13	363.95	364.81
29.....	364.04	363.50	363.80	363.80	364.05	364.21	363.73	.....	365.10	364.10	364.10	364.91
30.....	364.05	363.41	363.90	363.65	364.19	364.15	363.85	.....	365.10	364.04	364.22	365.04
31.....	363.92	363.36	.....	363.80	.....	364.05	364.05	.....	364.90	.....	364.22	.....

NOTE.—In September, 1917, the chain of this gage was found to be 0.26 foot too long, probably due to gradual stretching. A correction of 0.2 foot has been applied to observed elevations from January 1 to June 30.

KEUKA LAKE

DESCRIPTION

Keuka, or "Crooked," lake is one of the finger group of lakes in central New York. It lies west of the southerly part of Seneca lake, into which it drains. The lake is long and narrow, lying generally in a north and south direction, the northerly portion being divided into two approximately parallel branches. The shores of the lake rise rather abruptly from the water's edge. It has a total drainage area of 178.47 square miles, of which 17.51 square miles, or 9.8 per cent, is water-surface.

The lake is retained by a State dam in the outlet at Penn Yan. The outflow of the lake is practically controlled by the flow through two mills located at each end of the State dam, the water only occasionally flowing over the crest. This lake has a natural range of about 6 feet and according to occasional records of a gage maintained on the outlet about a fourth of a mile above the State dam by Mr. W. N. Wise of Penn Yan, the surface rose to 4 feet above the crest of the dam in April, 1870, and fell to 6 feet below the crest in December, 1899, giving an extreme range of 10 feet. The surface of the lake is at elevation about 715, Barge canal datum.

KEUKA LAKE AT PENN YAN

This station is located at Penn Yan at the foot of Keuka lake. It was established January 1, 1915, to determine lake level. The gage is located on the outlet about $\frac{3}{4}$ mile from the lake and above the State dam. It is a staff attached to a pile near the right bank about 100 feet above the upper bridge. The gage is read once daily — at 8 A. M. Gage heights only are published, as Barge canal levels have not as yet been extended to this locality. For earlier records in this vicinity see Keuka lake description, given above.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 101

Daily gage height, in feet, of KEUKA LAKE AT PENN YAN, for the year ended June 30, 1917. E. F. Garbus, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	9.4	8.3	7.2	6.2	5.2	4.2	3.5	3.0	3.2	4.1	4.4	5.2
2.....	9.4	8.3	7.2	6.2	5.1	4.2	3.5	3.0	3.2	4.2	4.3	5.2
3.....	9.4	8.3	7.2	6.1	5.1	4.2	3.4	2.9	3.1	4.2	4.3	5.2
4.....	9.3	8.2	7.1	6.1	5.1	4.1	3.4	2.9	3.1	4.3	4.3	5.2
5.....	9.3	8.2	7.1	6.1	5.0	4.1	3.4	2.9	3.1	4.3	4.4	5.2
6.....	9.2	8.1	7.1	6.0	5.0	4.1	3.5	2.9	3.1	4.3	4.7	5.2
7.....	9.2	8.1	7.0	6.0	5.0	4.0	3.5	2.8	3.2	4.5	4.7	5.4
8.....	9.1	8.1	7.0	6.0	4.9	4.0	3.5	2.8	3.2	4.5	4.7	5.5
9.....	9.1	8.0	7.0	5.9	4.9	4.0	3.4	2.8	3.2	4.5	4.7	5.6
10.....	9.1	8.0	6.9	5.9	4.9	3.9	3.4	2.7	3.2	4.5	4.7	5.6
11.....	9.0	8.0	6.9	5.9	4.8	3.9	3.4	2.7	3.3	4.5	4.7	5.7
12.....	9.0	7.9	6.9	5.8	4.8	3.9	3.4	2.7	3.6	4.5	4.7	5.8
13.....	9.0	7.9	6.8	5.8	4.8	3.8	3.3	2.7	3.6	4.5	4.8	5.8
14.....	8.9	7.9	6.8	5.8	4.7	3.8	3.3	2.6	3.8	4.4	4.8	5.8
15.....	8.9	7.8	6.8	5.7	4.7	3.8	3.3	2.6	3.8	4.4	4.8	5.8
16.....	8.9	7.8	6.8	5.7	4.7	3.7	3.3	2.6	3.8	4.4	4.8	5.8
17.....	8.8	7.7	6.7	5.7	4.7	3.7	3.2	2.6	3.7	4.4	4.8	5.7
18.....	8.8	7.7	6.7	5.6	4.6	3.7	3.2	....	3.7	4.5	4.7	5.7
19.....	8.8	7.6	6.7	5.6	4.6	3.7	3.2	....	3.7	4.5	4.7	5.8
20.....	8.7	7.6	6.6	5.6	4.6	3.6	3.2	....	3.7	4.5	4.7	5.9
21.....	8.7	7.6	6.6	5.5	4.5	3.6	3.3	....	3.7	4.5	4.7	5.9
22.....	8.7	7.5	6.6	5.5	4.5	3.6	3.3	....	3.8	4.4	4.7	6.0
23.....	8.6	7.5	6.5	5.5	4.5	3.6	3.3	....	3.8	4.4	4.8	6.0
24.....	8.6	7.5	6.5	5.4	4.5	3.6	3.3	....	3.8	4.4	4.8	6.1
25.....	8.6	7.5	6.5	5.4	4.4	3.6	3.2	....	3.8	4.4	4.8	6.2
26.....	8.5	7.4	6.4	5.4	4.4	3.6	3.2	....	3.9	4.3	4.8	6.2
27.....	8.5	7.4	6.4	5.3	4.4	3.5	3.2	3.2	3.9	4.3	4.8	6.6
28.....	8.5	7.4	6.4	5.3	4.3	3.5	3.1	3.2	4.0	4.3	4.9	6.6
29.....	8.4	7.3	6.3	5.3	4.3	3.5	3.1	....	4.0	4.4	5.0	6.7
30.....	8.4	7.3	6.3	5.2	4.3	3.5	3.1	....	4.1	4.4	5.1	6.7
31.....	8.4	7.3	....	5.2	....	3.5	3.0	....	4.1	....	5.2	....

NOTE.— February 18 to 26, inclusive, water below gage.

SENECA LAKE

DESCRIPTION

Seneca lake, the largest and deepest of the finger group lakes of central New York, has a length of about 34.4 miles, and a width varying from 1 to 3 miles. The area draining directly into Seneca lake, exclusive of Keuka lake above its outlet, is 529.62 square miles, of which 67.16 square miles, or 12.7 per cent, is water-surface. The total drainage above the outlet at Seneca lake, including Keuka lake, is 708.09 square miles, of which 84.67 square miles, or 12 per cent, is water-surface.

This lake has the usual alluvial fan at its south end which is characteristic of these glacial lakes.

Records of water-surface fluctuations are available, as follows:

Two records in 1841 and at varying intervals from June, 1844, to December, 1846, referred to the bottom of the Geneva level,

are found in the testimony of O. W. Childs, Esq., Chief Engineer, in publication entitled "Canal Frauds," Assembly document No. 100 (New York State), February 17, 1847, pp. 264-5.

1891 and 1910, inclusive, records at varying intervals of a gage maintained by Mr. Chas. W. Ingalls at Watkins.

1900-1905, inclusive, observations at irregular intervals will be found in the records of the City Engineer's office, Geneva, N. Y.

March, 1901, to October, 1904, inclusive, observations made by the State Engineering Department during the construction of the regulating works in the outlet about 1,500 feet from the lake.

1907 to 1909, inclusive, weekly records taken at the Geneva pumping station on Wednesday nights.

August, 1909, to December, 1914, inclusive, records of the gage maintained by the State Engineer's Department above the guard-gate in outlet about 1,500 feet from the lake.

September 21, 1912, to June 30, 1917, at Watkins.

January 1, 1915, to June 30, 1917, at Geneva.

The discharge from and the surface of this lake is controlled by regulating works at Waterloo, about 5 miles from the lake, constructed in connection with the canalization of the Seneca river for the Barge canal. These works consist of six Taintor gates, each having a clear span of 36 feet.

The proposed water-surfaces used in connection with the canalization work, referred to Barge canal datum, are as follows: Average high water, elevation 447.0; canal pool, or low navigable stage, elevation 445.0; average low water, elevation 444.5. By average surface is meant the surface unaffected by wind.

SENECA LAKE AT WATKINS

This station, established September 21, 1912, is located at the head, or south end of Seneca lake. The gage was originally located at the Fourth street bridge over the canal. On January 1, 1915, a direct-reading staff was located on McAnarney's dock. On July 12, 1916, a standard Type A gage, No. 209, was erected on docking at end of boat slip back of Lembeck and Betz' malt house. It has a range of 8 feet, between elevations 442.0 and 450.0. The gage bench-mark is the top of concrete foundation,

northeast corner of Lembeck and Betz' boiler room and is at elevation 453.465 (B. C. datum).

The gage is read once daily — at noon.

Daily elevation of water-surface (B. C. datum) of SENECA LAKE AT WATKINS, for the year ended June 30, 1917. Fred Wright, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	447.4	446.65	446.0	445.4	444.84	444.48	443.92	443.42	443.2	443.8	444.6	445.4
2.....	447.3	446.6	445.95	445.4	444.82	444.48	443.90	443.40	443.2	443.8	444.6	445.4
3.....	447.3	446.5	445.9	445.45	444.80	444.48	443.90	443.38	443.2	443.9	444.6	445.4
4.....	447.3	446.65	445.7	445.45	444.80	444.46	443.88	443.34	443.2	443.9	444.6	445.48
5.....	447.3	446.65	445.9	445.35	444.80	444.44	443.88	443.30	443.2	444.0	444.7	445.48
6.....	447.3	446.65	445.95	445.3	444.78	444.42	443.88	443.28	443.2	444.0	444.78	445.5
7.....	447.2	446.5	445.8	445.3	444.78	444.38	443.86	443.26	443.2	444.3	444.78	445.7
8.....	447.2	446.5	445.95	445.3	444.78	444.34	443.86	443.24	443.2	444.4	444.8	445.7
9.....	447.1	446.5	445.95	445.25	444.74	444.30	443.86	443.22	443.2	444.4	444.8	445.7
10.....	447.1	446.5	445.9	445.25	444.74	444.28	443.84	443.20	443.2	444.4	444.8	445.8
11.....	447.0	446.4	445.8	445.2	444.74	444.28	443.82	443.20	443.2	444.4	444.8	446.0
12.....	446.9	446.5	445.8	445.15	444.74	444.28	443.80	443.20	443.2	444.5	444.8	446.0
13.....	447.05	446.4	445.75	445.05	444.74	444.28	443.78	443.20	443.4	444.5	444.9	446.0
14.....	447.05	446.45	445.75	445.0	444.74	444.28	443.78	443.20	443.4	444.5	444.9	446.0
15.....	447.1	446.4	445.75	445.0	444.74	444.26	443.74	443.18	443.5	444.5	444.9	446.0
16.....	447.05	446.4	445.7	445.0	444.74	444.24	443.72	443.16	443.5	444.5	445.0	446.0
17.....	447.0	446.35	445.7	445.0	444.72	444.22	443.70	443.14	443.5	444.5	445.0	446.0
18.....	447.0	446.35	445.8	445.0	444.72	444.20	443.68	443.12	443.5	444.5	445.0	446.5
19.....	446.95	446.3	445.7	445.0	444.72	444.18	443.66	443.10	443.5	444.5	445.0	446.5
20.....	446.9	446.3	445.6	445.0	444.70	444.16	443.64	443.08	443.5	444.5	445.0	446.2
21.....	446.8	446.3	445.5	445.0	444.68	444.14	443.62	443.06	443.5	444.5	445.0	446.8
22.....	447.0	446.25	445.5	445.0	444.68	444.12	443.62	443.04	443.6	444.6	445.0	446.3
23.....	446.95	446.25	445.5	445.0	444.66	444.10	443.60	443.02	443.6	444.6	445.0	446.35
24.....	446.95	446.25	445.55	445.0	444.64	444.08	443.58	443.00	443.6	444.6	445.0	446.5
25.....	446.85	446.2	445.55	444.98	444.62	444.06	443.56	443.00	443.7	444.6	445.0	446.5
26.....	446.85	446.2	445.5	444.96	444.60	444.04	443.54	443.2	443.7	444.6	445.0	446.5
27.....	446.85	446.15	445.4	444.94	444.56	444.02	443.52	443.20	443.7	444.6	445.1	446.7
28.....	446.8	446.1	445.4	444.92	444.54	444.00	443.50	443.20	443.7	444.6	445.2	446.7
29.....	446.65	446.05	445.4	444.90	444.50	443.98	443.48	.....	443.7	444.6	445.3	446.7
30.....	446.6	446.0	445.55	444.88	444.48	443.96	443.46	.....	443.8	444.6	445.4	446.7
31.....	446.6	446.0	.....	444.86	.....	443.94	443.44	.....	443.8	.....	445.4	.....

NOTE.—Gage read to even hundredths, October 25, 1916, to February 23, 1917.

SENECA LAKE AT GENEVA

This station was established January 1, 1915, and was originally located near Castle street in the old Cayuga and Seneca canal harbor, but on March 19, 1915, it was moved to the Cayuga and Seneca canal just north of Lake street. The staff gage formerly used was replaced on July 14, 1916, by a standard Type A gage. This gage, No. 208, is secured to the east harbor wall just above the Lake street bridge, and has a range of 8 feet, between elevations 442.0 and 450.0. A standard bench-mark plug is set in the face of the wall near the gage, at elevation 449.0 (B. C. datum).

This station replaces the station formerly maintained in the Seneca river above the guard-gate about 1,500 feet below the mouth of Seneca lake.

The gage is read once daily — at noon — to half-tenths and even hundredths.

Daily elevation of water-surface (B. C. datum) of SENECA LAKE AT GENEVA, for the year ended June 30, 1917. T. C. McNicholas, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	a	446.60	445.92	445.46	444.74	444.40	443.90	443.36	443.12	443.82	444.50	445.38
2.....	a	446.58	445.90	445.44	444.72	444.35	443.86	443.34	443.22	443.82	444.52	445.48
3.....	a	446.56	445.88	445.42	444.70	444.35	443.82	443.32	443.20	443.76	444.50	445.54
4.....	a	446.54	445.86	445.40	444.70	444.32	443.78	443.32	443.15	444.00	444.45	445.50
5.....	a	446.52	445.84	445.38	444.72	444.28	443.84	443.30	443.16	444.10	444.60	445.44
6.....	a	446.50	445.82	445.36	444.72	444.25	443.84	443.30	443.14	444.18	444.66	445.52
7.....	a	446.48	445.80	445.35	444.70	444.22	443.82	443.30	443.15	444.18	444.72	445.54
8.....	a	446.46	445.82	445.32	444.68	444.18	443.80	443.30	443.25	444.22	444.76	445.72
9.....	447.13	446.44	445.82	445.28	444.68	444.15	443.78	443.18	443.01	444.24	444.74	445.72
10.....	447.16	446.42	445.78	445.24	444.68	444.15	443.70	443.25	443.02	444.25	444.74	445.78
11.....	447.18	446.50	445.74	445.20	444.66	444.14	443.74	443.10	443.06	444.36	444.75	445.88
12.....	447.20	446.40	445.72	445.18	444.62	444.14	443.72	443.14	443.42	444.26	444.78	445.90
13.....	447.24	446.38	445.70	445.18	444.58	444.14	443.88	443.05	443.42	444.32	444.82	445.85
14.....	447.10	446.36	445.68	445.15	444.68	444.14	443.70	443.12	443.00	444.36	444.84	446.00
15.....	447.20	446.34	445.72	445.12	444.68	444.12	443.68	443.24	443.44	444.36	444.86	445.92
16.....	447.00	446.32	445.72	445.10	444.66	444.12	443.66	443.06	443.48	444.40	444.90	446.02
17.....	446.96	446.30	445.70	445.04	444.68	444.12	443.64	443.12	443.65	444.40	444.85	446.00
18.....	446.92	446.28	445.68	445.05	444.70	444.10	443.62	443.00	443.48	444.38	444.85	445.95
19.....	447.00	446.26	445.64	445.05	444.66	444.08	443.60	443.12	443.45	444.36	444.90	446.06
20.....	446.88	446.24	445.62	445.02	444.64	444.05	443.58	443.04	443.50	444.46	445.16	445.85
21.....	446.85	446.22	445.70	445.00	444.60	444.02	443.56	443.02	443.48	444.48	445.00	446.25
22.....	446.88	446.18	445.58	444.96	444.58	444.00	443.38	442.95	443.52	444.40	445.16	446.22
23.....	446.88	446.15	445.54	444.92	444.56	444.00	443.48	443.08	443.65	444.28	444.95	446.18
24.....	446.85	446.12	445.52	444.88	444.54	443.98	443.45	442.92	443.55	444.40	445.00	446.32
25.....	446.90	446.03	445.50	444.85	444.52	443.96	443.42	443.00	443.64	444.50	445.02	446.35
26.....	446.75	446.05	445.48	444.82	444.50	443.95	443.38	443.00	443.65	444.46	445.00	446.45
27.....	446.60	446.04	445.46	444.80	444.48	444.00	443.35	443.15	443.70	444.45	445.00	446.60
28.....	446.64	446.02	445.44	444.78	444.46	444.00	443.32	443.10	443.76	444.50	445.00	446.62
29.....	446.72	446.00	445.45	444.78	444.44	443.98	443.34	.....	443.76	444.52	445.30	446.64
30.....	446.68	445.93	445.48	444.76	444.42	443.96	443.36	.....	443.80	444.46	445.40	446.65
31.....	446.64	445.95	.....	444.76	.....	443.94	443.38	.....	443.80	.....	445.46	.....

a No record.

CAYUGA LAKE

DESCRIPTION

Cayuga lake, the second in size of the finger lakes in central New York, has a length of about thirty-seven and a half miles, and a width varying from one to three miles, and lies generally in a north and south direction. It has the usual abruptly rising shores and the alluvial fan at its head or south end. The territory draining directly into this lake, exclusive of Seneca lake, has an area of 863.57 square miles, of which 66.31 square miles, or 7.7 per cent, is water-surface. The total drainage above the outlet of

Cayuga lake, including Keuka and Seneca lakes, is 1,571.66 square miles, of which the total water-surface of the three lakes amounts to 150.98 square miles or 9.6 per cent.

The southeast portion of this watershed, drained by Fall creek, lies south and east of a large portion of the Owasco lake drainage basin and extends almost to the southern end of Skaneateles lake.

Seneca river enters the foot of Cayuga lake from the west and leaves it near the east side at the new controlling works, about 2 miles north of Cayuga, built in connection with the Barge canal. These works consist of 6 Taintor gates, each having a clear span of 30 feet.

Proposed water-surface elevations for this lake as used in the canalization work referred to Barge canal datum are as follows: Average high water, elevation 384.0; canal pool, or low navigable stage, elevation 381.5; average low water, elevation 380.0. By average surface is meant the water-surface unaffected by wind.

Records of water-surface fluctuations in this lake in addition to those previously published in various reports of the Department of State Engineer, of gages maintained at Ithaca, Cayuga and Mud lock, are those of Professor C. L. Crandall of Cornell University, Ithaca, which consist of observations at varying intervals, beginning January, 1879.

CAYUGA LAKE AT ITHACA

This station was established August 6, 1905, and maintained by the United States Geological Survey until 1909. During the year 1909 it was taken over by this Department.

The original gage was on the breakwater at the head of Cayuga lake and about 150 feet from the lighthouse. The gage was moved about November 1, 1912, to Smith's boat-house opposite the Cornell boat-house about a mile up the inlet and remained at this place until December 19, 1914, when it was abandoned. It was reestablished January 23, 1915, at its present location. On July 11, 1916, a standard Type A gage, No. 207, was erected on the south side of Lane's dock at Willow point, on the east shore about $\frac{3}{4}$ mile from the head of the lake. It has a range of 6 feet, between elevations 381.0 and 387.0. The gage bench-mark is a nail in the root of a buttonwood tree, north of Lane's boat-house, and is at elevation 387.50 (B. C. datum).

The gage is read once daily — at 8 A. M. — to half-tenths.

Daily elevation of water-surface (B. C. datum) of CAYUGA LAKE AT WILLOW POINT
NEAR ITHACA, for the year ended June 30, 1917. William H. Lane, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	385.15	383.6	383.3	383.2	382.9	382.55	381.8	381.85	381.85	383.4	383.2	384.0
2.....	385.1	383.6	383.3	383.2	383.0	382.55	381.8	381.8	381.9	383.55	383.2	384.5
3.....	385.1	383.6	383.3	383.2	383.0	382.5	381.75	381.8	381.95	383.7	383.2	384.5
4.....	385.0	383.55	383.3	383.2	383.0	382.5	381.75	381.75	382.0	383.8	383.25	384.25
5.....	385.0	383.55	383.25	383.15	383.0	382.5	381.7	381.75	382.0	383.85	383.3	384.0
6.....	385.0	383.55	383.2	383.2	383.0	382.5	381.75	381.7	382.5	383.9	383.35	384.5
7.....	384.9	383.55	383.25	383.2	383.0	382.45	381.8	381.7	382.0	384.0	383.4	384.15
8.....	384.9	383.55	383.3	383.2	383.0	382.45	381.85	381.65	382.5	384.0	383.45	384.3
9.....	384.8	383.55	383.3	383.2	383.0	382.45	381.9	381.6	382.15	384.0	383.5	384.5
10.....	384.8	383.55	383.3	383.15	383.0	382.4	381.9	381.6	382.2	384.5	383.5	384.65
11.....	384.75	383.5	383.25	383.15	383.0	382.4	381.95	381.55	382.3	384.1	383.5	384.8
12.....	384.7	383.5	383.25	383.1	383.0	382.35	381.95	381.5	382.45	384.15	383.55	384.82
13.....	384.65	383.5	383.2	383.1	383.05	382.35	382.0	381.5	382.55	384.1	383.55	384.85
14.....	384.6	383.5	383.2	383.1	382.9	382.35	382.0	381.45	382.6	384.0	383.5	384.9
15.....	384.55	383.5	383.3	383.05	382.9	382.3	382.1	381.45	382.65	383.95	383.5	384.9
16.....	384.5	383.5	383.4	383.05	382.85	382.3	382.1	381.4	382.7	383.9	383.5	384.9
17.....	384.45	383.5	383.4	383.0	382.85	382.25	382.1	381.35	382.75	383.8	383.45	384.8
18.....	384.4	383.5	383.35	383.0	382.85	382.25	382.0	381.4	382.8	383.7	383.45	384.75
19.....	384.3	383.5	383.3	383.0	382.8	382.2	382.0	381.4	382.8	383.6	383.42	384.72
20.....	384.25	383.5	383.25	383.0	382.8	382.2	382.0	381.4	382.8	383.5	383.42	384.8
21.....	384.2	383.5	383.2	383.0	382.75	382.15	381.95	381.4	382.85	383.4	383.4	384.95
22.....	384.15	383.5	383.1	383.0	382.7	382.1	381.95	381.4	382.9	383.35	383.45	385.0
23.....	384.1	383.5	383.15	383.0	382.7	382.1	381.9	381.4	382.95	383.3	383.5	385.0
24.....	384.0	383.5	383.15	382.95	382.65	382.05	381.9	381.45	383.0	383.3	383.5	385.1
25.....	384.0	383.45	383.1	382.95	382.65	382.0	381.85	381.45	383.5	383.3	383.5	385.2
26.....	383.9	383.45	383.1	382.9	382.6	382.0	381.85	381.45	383.1	383.3	383.5	385.4
27.....	383.9	383.4	383.1	382.9	382.6	382.0	381.8	381.75	383.2	383.25	383.5	385.45
28.....	383.8	383.4	383.1	382.9	382.6	381.95	381.8	381.8	383.35	383.3	383.55	385.45
29.....	383.7	383.35	383.2	382.9	382.6	381.9	381.8	.....	383.35	383.25	383.75	385.48
30.....	383.65	383.35	383.25	382.9	382.6	381.9	381.8	.....	383.35	383.2	383.9	385.5
31.....	383.6	383.35	.....	382.9	.....	381.85	381.85	.....	383.35	.....	383.95	.....

CAYUGA LAKE AT CAYUGA

This station is located at the village of Cayuga near the foot of Cayuga lake on the east shore. The station was established October 10, 1905, and was originally located near the crossing of the old Cayuga and Seneca canal and the Seneca river. It was moved to its present location May 16, 1914. On October 6, 1916, the direct-reading staff gage, on a pile opposite the N. Y. C. station, was replaced by a standard Type A gage, No. 206, in the same location. It has a range of 8 feet, between elevations 380.0 and 388.0. The gage bench-mark is on the southwest corner of concrete intake tank, on west side of N. Y. C. pumping station, and is at elevation 390.67 (B. C. datum).

The gage is read twice daily—at 7 A. M. and 5 P. M.—to tenths.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 107

Daily elevation of water-surface (B. C. datum) of CAYUGA LAKE AT CAYUGA, for
the year ended June 30, 1917. T. Reagan, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	385.0	383.3	383.1	383.0	382.9	382.5	381.8	381.6	381.7	383.35	383.2	383.9
2.....	384.95	383.35	383.1	383.0	383.0	382.4	381.8	381.7	381.8	383.45	383.05	383.9
3.....	384.85	383.4	383.05	383.0	382.9	382.4	381.7	381.7	381.9	383.5	383.1	383.9
4.....	384.8	383.5	383.1	383.05	383.0	382.4	381.7	381.7	381.9	383.7	383.1	383.95
5.....	384.7	383.45	383.1	383.05	383.0	382.4	381.8	381.7	381.9	383.85	383.1	384.0
6.....	384.8	383.35	383.1	383.0	383.0	382.3	381.7	381.6	381.9	383.85	383.25	384.0
7.....	384.8	383.4	383.1	383.05	383.0	382.3	381.8	381.6	381.9	383.8	383.3	384.15
8.....	384.65	383.35	383.1	383.05	383.0	382.3	381.9	381.6	381.9	383.85	383.3	384.15
9.....	384.6	383.3	383.1	382.9	383.0	382.35	381.9	381.5	381.9	383.9	383.35	384.35
10.....	384.6	383.4	383.1	383.05	383.0	382.35	381.9	381.5	382.0	383.85	383.3	384.55
11.....	384.6	383.5	383.1	382.9	382.95	382.3	381.9	381.45	382.15	383.95	383.3	384.7
12.....	384.55	383.35	383.15	383.0	383.0	382.3	381.9	381.4	382.35	383.9	383.3	384.7
13.....	384.5	383.3	383.1	383.0	383.0	382.2	382.0	381.4	382.4	384.0	383.3	384.7
14.....	384.35	383.35	383.05	382.95	382.9	382.2	382.0	381.3	382.65	383.9	383.2	384.7
15.....	384.4	383.4	383.2	383.0	383.0	382.2	382.0	381.3	382.6	383.75	383.25	384.7
16.....	384.35	383.4	383.1	382.95	382.9	382.05	381.9	381.3	382.65	383.7	383.35	384.8
17.....	384.3	383.4	383.2	382.9	382.9	382.1	381.95	381.35	382.75	383.6	383.35	384.8
18.....	384.2	383.4	383.15	382.95	382.9	382.05	382.0	381.3	382.7	383.5	383.3	384.7
19.....	384.2	383.4	383.1	383.05	382.8	382.0	381.95	381.3	382.7	383.4	383.3	384.7
20.....	384.1	383.4	383.1	382.95	382.7	382.0	381.9	381.4	382.7	383.4	383.3	384.8
21.....	384.0	383.4	383.1	383.0	382.7	382.0	381.9	381.3	382.7	383.3	383.3	384.9
22.....	383.9	383.4	383.1	383.0	382.7	382.0	381.9	381.35	382.7	383.3	383.45	384.9
23.....	383.85	383.25	383.1	383.0	382.7	382.0	381.9	381.45	382.9	383.25	383.45	384.9
24.....	383.8	383.2	383.05	383.0	382.7	382.0	382.0	381.35	382.9	383.15	383.4	384.95
25.....	383.85	383.2	382.9	383.1	382.6	382.05	381.9	381.3	383.0	383.1	383.4	385.0
26.....	383.65	383.2	383.0	382.9	382.55	381.9	381.8	381.4	383.05	383.2	383.4	385.0
27.....	383.55	383.2	383.0	382.95	382.6	381.95	381.75	381.6	383.15	383.2	383.4	385.2
28.....	383.6	383.2	383.05	382.9	382.65	381.9	381.75	381.7	383.25	383.1	383.45	385.4
29.....	383.6	383.2	383.0	383.0	382.6	381.8	381.8	.....	383.35	383.1	383.65	385.4
30.....	383.55	383.15	382.9	382.9	382.65	381.8	381.7	.....	383.3	383.1	383.8	385.35
31.....	383.35	383.1	.....	382.95	.....	381.8	381.6	.....	383.3	.....	383.85	.....

CLYDE RIVER

DESCRIPTION

Clyde river joins Seneca river in the Montezuma marsh near the foot of Cayuga lake. Clyde river is formed by the junction of Canandaigua outlet and Ganargua creek, at Lyons. Its total length is about 20 miles and the greater portion of its course lies through a broad, marshy valley.

It is canalized throughout for the Barge canal and formed into three navigable pools, having low navigable water-surfaces referred to Barge canal datum as follows:

Above its confluence with the Seneca river by a dam at Baldwinsville on the latter stream, elevation 374.0; above the movable dam at Mays Point, elevation 380.0; and above dam at Barge canal lock No. 26, about 2.3 miles downstream from Clyde, elevation 386.0.

CLYDE RIVER AT LYONS

This station, located in the village of Lyons, was established September 27, 1905. A standard chain gage is attached to the downstream side of the Geneva street bridge and has a range of 14 feet, the zero of the gage being elevation 385.0 (B. C. datum). During the years 1907 to 1910, inclusive, discharge was obtained at this station, but at present it is maintained for water-surface elevations only.

The gage is read once daily — at 1 P. M.

Daily elevation of water-surface (B. C. datum) of CLYDE RIVER AT GENEVA ST., LYONS, for the year ended June 30, 1917. D. C. Putnam and E. J. Weber, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	392.5	390.1	389.5	389.5	389.9	390.3	389.3	389.9	392.1	391.8	390.5	391.4
2.....	392.0	390.1	389.6	389.5	389.9	390.1	389.4	389.7	391.7	392.4	390.4	391.4
3.....	392.7	390.0	389.5	389.7	390.0	389.7	389.3	389.6	391.2	392.9	390.2	391.5
4.....	392.0	390.4	389.4	389.6	390.0	389.6	389.3	389.6	391.3	392.5	390.1	391.2
5.....	392.2	389.9	389.7	389.3	390.0	389.6	389.5	389.5	390.9	391.7	390.1	390.9
6.....	391.7	389.8	389.6	389.8	389.9	389.9	390.9	390.4	390.6	392.8	390.9	392.1
7.....	391.4	389.9	389.5	389.6	390.0	389.8	390.7	389.3	390.6	395.5	390.8	393.9
8.....	391.3	389.9	389.7	389.3	389.9	389.5	390.4	390.5	390.7	394.8	390.6	396.5
9.....	391.1	389.9	389.8	389.8	390.1	389.5	390.4	389.4	390.8	393.5	390.4	395.5
10.....	391.1	390.0	389.6	389.6	390.2	389.2	390.3	389.2	390.7	392.4	390.5	393.0
11.....	391.0	390.0	389.6	389.9	390.1	389.4	390.2	389.3	391.7	391.9	390.6	397.5
12.....	391.0	390.6	389.7	389.7	390.0	389.3	389.9	389.3	394.9	391.7	390.5	395.7
13.....	390.8	390.4	389.5	389.7	389.7	389.3	389.7	389.2	394.5	391.4	390.5	393.9
14.....	393.3	390.4	389.6	389.5	390.2	389.0	389.5	389.4	394.1	391.5	390.2	392.6
15.....	391.4	390.2	389.6	389.7	390.0	389.1	389.7	389.3	393.3	391.3	390.2	392.0
16.....	391.0	390.0	389.8	389.6	390.4	388.9	389.6	389.2	392.7	391.2	390.3	391.8
17.....	390.8	389.8	390.0	389.8	389.8	388.7	389.5	389.1	392.8	391.1	390.2	391.7
18.....	390.8	390.0	389.6	389.7	390.0	388.8	389.6	389.4	393.0	391.0	390.1	391.5
19.....	390.7	389.9	389.7	389.9	390.0	388.9	389.4	389.6	392.0	390.9	390.1	392.1
20.....	390.8	389.8	389.6	389.7	390.0	388.7	389.4	389.7	391.9	391.0	390.7	392.1
21.....	390.6	390.3	389.9	389.8	390.1	388.7	389.6	389.6	392.0	391.1	391.0	392.0
22.....	390.6	390.4	389.5	389.9	390.0	389.1	389.6	389.5	392.1	390.9	391.3	391.6
23.....	390.8	390.0	389.5	389.9	390.0	389.0	389.7	389.5	392.4	390.8	391.7	391.3
24.....	390.7	389.8	389.5	389.7	390.1	389.0	389.5	389.6	393.1	390.8	391.6	392.0
25.....	390.7	389.8	389.4	389.7	390.4	389.2	389.5	389.8	393.0	390.8	391.5	392.1
26.....	390.4	389.8	389.7	389.8	390.0	389.2	389.4	389.9	392.5	390.6	391.2	391.7
27.....	390.4	389.6	389.7	389.8	390.4	389.3	389.3	392.0	392.1	390.9	390.9	394.0
28.....	390.4	389.7	389.4	389.8	390.3	389.3	389.1	392.8	393.0	390.9	390.9	393.0
29.....	390.3	389.7	389.6	390.0	390.4	389.4	389.1	.....	392.6	390.4	392.1	392.4
30.....	390.3	389.6	389.5	389.7	390.3	389.4	389.6	.....	392.2	390.5	392.4	392.6
31.....	390.2	389.7	.....	390.0	.....	389.3	389.8	.....	391.8	.....	391.7	.....

CLYDE RIVER AT CLYDE

This station, located in the village of Clyde, was established October 20, 1905, as a discharge station, but owing to Barge canal construction, it has been maintained for water-surface elevations only since 1909. A standard chain gage, No. 214, is secured to the downstream side of the Sodus street bridge, the zero of the gage being elevation 375.79 (B. C. datum). There were several changes in the datum of the gage between April 1, 1916, and January 12, 1917, due to construction work and opening of gates at Barge canal lock No. 26.

The gage is read twice daily—July 1 to September 30, and April 1 to June 30, at 7 A. M. and 6:30 P. M.; October 1 to December 2, at 7:30 A. M. and 5:30 P. M.; December 3 to April 1, at 7:30 A. M. and 4:30 P. M.—to tenths, elevation being published to the nearest half-tenth of a foot.

Daily elevation of water-surface (B. C. datum) of CLYDE RIVER AT CLYDE, for the nine months ended June 30, 1916. Byron H. Perry, Observer

DAY	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	380.6	381.3	381.45	381.8	382.4	381.4	393.1	384.2	383.0
2	380.8	381.2	382.0	382.65	382.4	381.4	392.35	383.6	382.75
3	381.25	381.2	382.8	385.75	381.85	381.4	391.35	383.3	383.6
4	381.2	381.2	382.6	386.4	381.6	381.4	390.1	383.25	385.25
5	381.45	381.2	382.05	386.9	381.4	381.4	389.1	383.1	385.8
6	382.35	381.2	381.6	386.9	381.4	381.4	387.95	382.95	385.25
7	382.1	381.2	381.65	386.8	381.4	381.4	387.1	382.9	384.8
8	381.7	381.3	381.2	386.3	381.4	381.4	386.7	382.6	384.2
9	381.7	381.3	381.1	386.3	381.4	381.4	386.3	382.2	383.8
10	381.4	381.3	381.1	385.35	381.4	381.4	386.05	381.85	384.35
11	381.5	381.3	381.1	384.65	381.4	381.4	385.75	381.6	384.5
12	381.5	381.3	381.1	384.35	381.4	381.4	385.6	381.4	384.6
13	381.3	381.3	380.75	384.25	381.4	381.9	385.45	381.3	384.7
14	381.2	381.3	380.7	384.2	381.4	382.9	385.25	381.3	384.25
15	381.2	381.3	380.7	384.05	381.4	383.25	385.1	381.45	383.65
16	381.6	381.35	380.8	383.9	381.4	383.3	385.1	381.8	383.75
17	381.6	381.4	380.95	383.7	381.4	383.3	384.9	384.85	384.6
18	381.55	381.45	381.25	383.4	381.4	383.3	384.75	385.2	387.6
19	381.5	381.65	381.9	383.4	381.4	383.3	384.6	388.5	388.4
20	381.95	381.7	381.25	383.2	381.6	383.3	384.35	387.15	388.2
21	382.0	381.95	381.2	382.5	381.6	382.6	384.4	386.8	387.45
22	381.95	382.15	381.95	382.4	381.6	382.6	384.85	385.05	386.6
23	381.5	382.1	381.8	383.7	381.6	382.6	385.25	385.05	385.85
24	381.5	382.1	381.9	383.2	381.4	382.6	386.9	385.7	385.0
25	381.5	381.8	382.6	382.7	381.4	382.6	386.6	385.6	385.2
26	381.5	381.65	382.3	382.7	381.4	382.85	385.8	385.0	385.9
27	381.4	381.6	383.4	382.7	381.4	383.45	385.5	384.4	385.85
28	381.3	381.5	382.9	382.6	381.4	385.15	385.05	384.05	385.45
29	381.3	381.4	381.9	382.6	381.4	380.4	384.75	383.75	384.6
30	381.3	381.3	381.9	382.6	.....	393.0	384.45	383.6	383.9
31	381.3	.....	381.8	382.5	.....	393.9	.....	383.4	.....

NOTE.—This table supersedes that published in Report of State Engineer and Surveyor for 1916, Vol. II, page 107, Elevations from April 1 to June 30, inclusive, being revised, due to change of datum.

Daily elevation of water-surface (B. C. datum) of CLYDE RIVER AT CLYDE, for the year ended June 30, 1917. H. K. Compson, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	a	386.45	385.1	386.25	386.3	386.5	386.2	377.6	380.95	379.8	386.6	386.95
2.....	a	386.4	385.2	386.25	386.35	386.5	386.2	378.35	380.05	380.45	386.7	383.9
3.....	a	386.4	384.45	386.3	386.4	386.45	386.3	378.95	379.5	381.35	386.6	383.9
4.....	a	386.45	385.15	386.3	386.4	386.4	386.3	378.8	379.25	381.05	386.5	386.85
5.....	a	386.45	385.6	386.3	386.4	386.4	386.3	378.45	380.75	380.3	386.7	386.85
6.....	a	386.35	385.9	386.2	386.4	386.4	386.35	378.25	380.45	381.2	386.8	387.05
7.....	386.85	386.35	386.2	386.25	386.4	386.4	384.45	377.85	379.8	384.45	386.9	387.7
8.....	386.75	386.4	386.25	386.3	386.4	386.3	382.3	377.7	378.65	384.8	386.8	388.6
9.....	386.7	386.35	386.4	386.3	386.4	386.3	380.4	377.6	378.45	384.3	386.8	388.45
10.....	386.65	386.35	386.3	386.3	386.5	386.3	379.6	377.65	378.55	386.2	386.8	388.25
11.....	386.65	386.4	385.85	386.3	386.4	386.2	378.55	377.6	379.6	387.0	386.75	388.25
12.....	386.65	386.45	384.7	386.3	386.4	386.25	378.4	377.6	382.9	387.1	386.7	388.55
13.....	386.65	386.55	385.3	386.25	386.4	383.2	378.3	377.3	383.8	387.0	386.7	388.1
14.....	387.1	386.45	385.7	386.3	386.4	386.2	378.15	377.5	383.4	387.0	386.6	387.4
15.....	387.1	386.45	386.3	386.3	386.4	386.2	377.9	377.45	382.3	386.95	386.5	387.15
16.....	386.7	386.35	386.3	386.3	386.4	386.2	377.65	377.4	381.35	386.9	386.5	386.95
17.....	386.65	386.35	386.45	386.3	386.4	386.2	377.5	377.35	381.5	386.85	386.6	386.9
18.....	386.6	386.35	386.4	386.3	386.4	386.1	377.5	377.3	381.6	386.8	386.55	386.85
19.....	386.55	386.35	386.3	386.3	386.45	386.15	377.65	377.45	381.25	386.8	386.5	387.1
20.....	386.55	386.3	386.3	386.3	386.4	386.1	377.6	377.6	380.6	386.55	386.6	387.05
21.....	386.55	386.35	386.3	386.2	386.45	386.15	377.6	377.55	380.6	386.8	386.7	387.0
22.....	386.55	386.35	386.35	386.3	386.5	386.2	377.65	377.55	380.7	386.65	386.8	386.95
23.....	386.55	386.35	386.3	386.3	386.5	386.2	377.7	377.45	381.05	386.7	386.85	386.7
24.....	386.55	386.35	386.3	386.3	386.45	386.2	377.5	377.35	381.7	386.7	386.8	386.95
25.....	386.55	386.35	386.2	386.3	386.45	386.2	377.5	377.3	382.0	386.7	386.8	387.05
26.....	386.55	*	386.25	386.3	386.4	386.2	377.45	377.35	381.4	386.7	386.8	387.05
27.....	386.45	*	386.3	386.3	386.45	386.2	377.35	379.15	380.85	386.8	386.65	387.45
28.....	386.45	*	386.25	386.4	386.5	386.3	377.3	381.35	381.3	386.8	386.65	387.55
29.....	386.45	*	386.3	386.4	386.5	386.3	377.3	.....	380.95	386.7	386.9	387.2
30.....	386.45	385.6	386.3	386.3	386.4	386.3	377.5	.....	380.65	386.65	387.1	387.3
31.....	386.45	384.45	.....	386.3	.....	386.2	377.6	.....	380.05	.....	387.0	.....

NOTE.— Low water from January 7 to April 9, due to gates at lock No. 26 being open.

* Raising bridge; no record.

a No record.

GANARGUA CREEK

DESCRIPTION

Ganargua creek proper, often called Mud creek, rises near Victor. Its course is northeasterly to Macedon, then easterly. The tributary drainage is of the characteristic glacial kame type and the tributaries are rather sparse, flowing oftentimes first north and then south between elongated hills, until they find their way to Ganargua creek. The principle tributary of Ganargua creek is Mud creek, which rises in the hilly region near the head of Canandaigua lake and flows northward about 20 miles, entering Ganargua creek at Victor.

Ganargua creek, approaching from the south, has been incorporated in the Barge canal from about the western limits of the town of Palmyra eastward for about two and three-quarter miles to a spillway 360 feet long, 160 feet of which is at canal pool elevation 430.0 and the remainder one foot higher, over which it passes to the north towards Harrison's mill. About 1.2 miles east of where the creek enters the canal there is a 5 ft. x 7 ft. gate to supply water to Barnhart's mill and from below this mill to the spillway portions of the original creek channel have been straightened. Ganargua creek reënters the Barge canal just west of the village of Lyons and above the dam at lock No. 27, immediately above its confluence with Canandaigua outlet, forming the Clyde river.

GANARGUA CREEK NEAR PALMYRA

This station, established March 25, 1907, is located at Harrison's mill about $2\frac{1}{2}$ miles east of Palmyra. The original gage, a staff fastened to the screen rack frame, was used until November 11, 1916, when a new standard gage, No. 217, was attached to the east wing wall of the south abutment of the highway bridge just above the mill. It has a range of 11 feet, between elevations 419.0 and 430.0. A standard bench-mark plug is set in the wing wall near the gage at elevation 428.0 (B. C. datum).

Until November 11 the gage was read once daily — at 1 P. M. — to half-tenths, the odd hundredths appearing in the table being due to the datum of the gage. Beginning November 11, the gage has been read twice daily — morning and afternoon — to half-tenths and even hundredths. The station is maintained for water-surface elevation only.

Daily elevation of water-surface (B. C. datum) of GANARGUA CREEK NEAR PALMYRA,
for the year ended June 30, 1917. C. H. Harrison, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	422.33	422.03	422.08	422.03	422.43	422.51	421.60	421.95	422.99	422.72	421.58	422.54
2.....	422.28	421.98	422.03	422.08	422.48	422.29	420.95	422.00	422.82	422.81	420.80	422.50
3.....	422.33	422.03	422.08	422.13	422.53	421.95	421.59	422.03	422.62	422.95	421.66	422.47
4.....	422.33	422.08	422.08	422.08	422.73	422.14	421.75	422.12	422.51	422.96	421.79	422.41
5.....	422.18	422.03	422.13	422.08	422.63	422.08	421.89	422.10	422.33	422.84	421.84	422.41
6.....	422.08	421.98	422.08	422.03	422.43	422.29	422.21	422.06	422.26	422.90	422.00	422.89
7.....	422.13	422.03	422.13	422.08	422.48	422.14	422.26	422.00	422.24	423.75	422.09	422.95
8.....	422.03	422.08	422.18	422.08	422.43	422.00	422.30	421.98	422.28	423.60	422.09	425.00
9.....	422.08	422.13	422.18	422.13	422.48	421.96	422.32	421.89	422.36	423.18	422.12	423.35
10.....	422.08	422.13	422.08	422.43	422.48	421.94	422.30	421.86	422.38	422.85	422.02	423.22
11.....	422.13	422.18	422.03	422.28	422.50	421.90	422.12	421.80	422.88	422.68	422.01	424.65
12.....	422.08	422.28	422.03	422.33	422.31	421.88	422.15	421.80	422.40	422.56	422.01	423.76
13.....	422.13	422.28	422.03	422.23	422.59	421.75	422.19	421.82	423.80	422.63	421.83	423.15
14.....	423.93	422.18	422.03	422.28	422.39	421.56	422.16	421.80	423.30	422.55	422.01	422.90
15.....	422.23	422.13	422.08	422.33	422.46	421.81	422.08	421.89	423.06	422.49	422.00	423.60
16.....	422.18	422.08	422.13	422.53	422.48	421.77	422.02	421.89	422.88	422.40	421.92	422.58
17.....	422.23	422.08	422.18	422.43	422.40	421.76	422.08	421.89	422.94	422.86	421.89	422.50
18.....	422.23	422.13	422.13	422.33	422.41	421.70	422.04	421.88	423.19	422.29	421.91	422.56
19.....	422.28	422.33	422.13	422.38	422.54	421.67	422.09	421.81	422.78	422.27	421.92	422.71
20.....	422.33	422.38	422.23	422.33	422.47	421.60	422.02	422.06	422.70	422.28	422.30	422.74
21.....	422.38	422.33	422.13	422.33	422.45	421.44	422.10	422.00	422.74	422.27	422.55	422.71
22.....	422.43	422.33	422.08	422.33	422.21	421.41	422.02	421.98	422.80	422.28	422.70	422.61
23.....	422.43	422.08	422.03	422.28	422.48	421.47	422.05	421.95	422.86	422.21	422.72	422.54
24.....	422.43	422.13	422.08	422.28	422.50	421.31	422.05	421.92	423.06	422.12	422.62	422.75
25.....	422.28	422.33	422.13	422.43	422.58	421.31	422.05	421.98	423.06	422.19	422.62	422.76
26.....	422.28	422.13	422.08	422.93	422.61	421.34	422.02	422.27	422.84	422.21	422.56	422.67
27.....	422.23	422.08	422.03	422.83	422.63	421.58	421.98	423.46	422.22	422.80	422.52	422.24
28.....	422.33	422.08	422.03	422.83	422.78	421.57	421.98	423.36	423.40	422.15	422.67	423.01
29.....	422.18	422.13	422.13	422.43	422.57	421.56	422.02	.....	423.14	421.86	422.89	422.90
30.....	422.08	422.03	422.08	422.38	422.51	421.62	421.98	.....	422.99	421.87	422.83	422.74
31.....	422.33	422.08	.....	422.38	.....	421.64	422.00	.....	422.80	.....	422.78	.....

CANANDAIGUA OUTLET

DESCRIPTION

Canandaigua lake occupies one of the elongated depressions extending in nearly a north and south direction in the central lake region of New York. The drainage tributary to the lake is chiefly short lateral streams from the steep slopes of adjacent hill-sides. The outflow from the lake is regulated to some extent by gates. The lake is at elevation about 686. From the foot of the lake at Canandaigua the outlet flows northward to Manchester, a distance of 7 miles. In this distance a fall of 100 feet occurs, which is chiefly concentrated at several water-power dams. From Manchester the stream flows easterly 12 miles and thence north-easterly 8 miles, joining Ganargua creek at Lyons to form the Clyde river. In the easterly portion of its course the stream winds

with large bends through a broad sloping valley of fertile land. The fall is mostly utilized at water-power dams. The tributary drainage is moderately rolling and is interspersed with glacial kames. These are lenticular hills extending usually in a north and south direction. At Phelps, Flint creek, which is the largest tributary, enters the outlet. Flint creek drains a valley similar to the adjacent lake basins. This valley is not at present occupied by a lake, but contains an extensive swamp, reaching several miles southward from Gorham.

CANANDAIGUA OUTLET AT ALLOWAY

Location.—At a highway bridge crossing the stream in the village of Alloway about $2\frac{1}{2}$ miles upstream or south of Lyons.

Drainage area.—440 square miles. (United States Geological Survey topographic maps.)

Records available.—September 18, 1906, to June 30, 1917.

Gage.—The original staff gage was replaced on November 7, 1916, by a standard Type A gage secured to the north wing of the west abutment of the highway bridge and has a range of $11\frac{1}{2}$ feet, between elevations 402.5 and 414.0. A standard benchmark plug is set near the gage at elevation 410.0 (B. C. datum). The gage is read twice daily — about 8:30 A. M. and 4 P. M. — to nearest two-tenths until November 7, since that date to half-tenths, the odd hundredths appearing in the table previous to November 7 being due to the datums of the gage.

Discharge measurements.—Current-meter measurements made from the highway bridge, which has a span of 95 feet.

Control.—Except during low stages the control at this station is Slaters dam, located about two miles below the bridge, together with the slope upstream. Sluice-gates at the dam are kept open always, water passing over the crest only during extremely high flows.

Extremes of discharge.—Current year: Maximum stage recorded, elevation 410.6 on June 11, at 8:25 A. M.; discharge, estimated at 2,760 second-feet. Minimum stage recorded, elevation 403.0, on December 24, at 4:20 P. M.; discharge, estimated as 2 second-feet.

1906-1917: Maximum stage recorded, March 29, 1916, at 8:30 A. M., elevation 412.5; discharge estimated as 3,870 second-feet.

Minimum stage recorded, December 24, 1916; discharge, estimated as 2 second-feet.

Regulation.—Daily flow materially affected by operation of grist-mill a quarter mile above station.

Accuracy.—Discharge rating curve fairly well defined for flows below 1,000 second-feet. Higher flows estimated.

Discharge measurements of CANANDAIGUA OUTLET AT ALLOWAY, during the year ended June 30, 1917

DATE	Made by	Elevation of water-surface	Discharge
Nov. 26, 1916	G. E. Gibson and P. F. Scully	<i>Fest</i> 403.58	<i>Sec.-ft.</i> 35.7
April 27, 1917	M. W. Grimes and P. F. Scully	404.98	313

Daily elevation of water-surface (B. C. datum) of CANANDAIGUA OUTLET AT ALLOWAY, for the year ended June 30, 1917. Carl Tuscher, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	406.3	404.5	403.9	403.7	403.6	404.02	404.02	404.60	405.88	405.45	404.95	405.22
2	406.1	404.5	403.9	403.7	403.6	403.98	404.10	404.72	405.58	405.90	404.82	405.12
3	406.1	404.7	403.9	403.5	403.7	403.82	404.35	404.72	405.52	406.12	404.82	405.12
4	406.0	404.5	403.7	403.5	403.6	403.85	404.28	404.62	405.90	405.60	404.68	405.00
5	405.9	404.3	403.8	403.5	a	404.08	404.30	404.62	405.72	405.45	404.72	405.05
6	405.9	404.3	404.1	403.4	403.75	403.80	404.60	404.62	405.75	406.30	404.62	405.60
7	405.7	404.2	403.8	403.5	403.78	403.90	404.90	404.72	405.60	408.02	404.70	408.28
8	405.7	404.3	403.9	403.5	403.72	403.90	404.32	404.75	405.78	407.60	404.90	408.65
9	405.6	404.1	403.9	403.5	403.85	403.80	404.15	404.72	405.45	406.42	404.78	407.82
10	405.5	404.1	403.9	403.9	403.78	403.72	404.20	404.85	405.25	405.80	404.75	406.30
11	405.5	404.1	403.9	403.9	403.85	403.95	404.90	404.80	406.90	405.50	404.90	410.10
12	405.3	404.5	403.9	403.8	403.50	403.98	405.10	404.82	409.22	405.50	404.92	407.25
13	406.0	404.3	403.8	403.6	403.88	403.58	404.80	404.68	407.30	405.50	404.88	406.45
14	406.4	404.3	403.5	403.5	403.95	403.80	404.85	404.52	407.00	405.40	404.80	406.00
15	405.5	404.1	403.8	403.6	403.78	403.68	404.85	404.82	406.45	405.40	404.68	405.82
16	405.3	404.1	403.9	403.9	403.85	403.48	404.75	404.52	406.58	405.40	404.45	405.72
17	405.1	404.1	403.9	403.8	403.88	403.45	404.80	404.48	406.50	405.38	404.38	405.50
18	405.1	404.1	403.9	403.7	403.65	403.88	404.70	404.75	406.10	405.38	404.35	405.68
19	405.1	404.0	403.9	403.6	403.55	403.72	404.70	404.88	405.92	405.15	404.42	405.72
20	404.9	403.9	403.8	403.8	404.05	403.70	404.65	404.82	405.68	405.10	404.75	405.52
21	404.9	404.1	403.7	403.9	403.65	404.80	404.70	404.68	405.45	405.05	404.78	405.50
22	405.1	404.3	403.7	403.6	403.75	403.68	404.75	404.68	405.52	405.08	404.75	405.35
23	404.9	404.2	403.7	403.5	404.08	404.20	404.80	404.70	405.40	405.05	404.78	405.18
24	404.9	404.1	403.7	403.5	404.15	403.42	404.82	404.62	405.90	405.02	405.00	405.52
25	404.9	404.1	403.7	403.5	403.75	404.05	404.80	404.72	405.55	404.85	404.92	405.45
26	404.9	404.1	403.7	403.5	403.55	404.20	404.72	404.72	405.35	404.92	404.75	405.48
27	404.9	403.9	403.7	403.5	403.98	404.22	404.72	408.20	405.35	405.00	404.72	407.90
28	404.9	403.9	403.7	403.5	404.05	404.45	404.75	406.60	405.45	404.92	404.88	407.10
29	404.9	404.2	403.7	403.5	404.05	404.35	404.70	.....	405.50	404.80	405.52	406.58
30	404.8	404.0	403.7	403.6	404.05	404.00	404.72	.....	405.40	404.72	405.55	406.20
31	404.7	403.9	.....	403.7	.....	404.18	404.60	.....	405.25	.....	405.20	.....

a No record.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 115

Daily discharge, in second-feet, of CANANDAIGUA OUTLET AT ALLOWAY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	786	192	74	50	39	89	.....	.....	.....	474	317	400
2.....	712	192	74	50	39	83	.....	.....	.....	628	277	368
3.....	712	249	74	30	50	62	.....	.....	.....	700	277	368
4.....	676	192	50	30	39	66	.....	.....	.....	522	236	332
5.....	638	143	62	30	a	98	.....	.....	.....	474	248	347
6.....	638	143	105	22	54	60	.....	.....	.....	774	220	522
7.....	568	123	62	30	57	72	.....	.....	.....	1,480	242	1,560
8.....	568	143	74	30	50	72	.....	.....	.....	1,290	301	1,760
9.....	532	105	74	30	66	60	.....	.....	.....	810	265	1,390
10.....	496	105	74	74	57	50	.....	.....	.....	592	256	774
11.....	496	105	74	74	66	78	.....	.....	.....	490	301	2,490
12.....	430	192	74	62	28	83	.....	.....	.....	490	307	1,140
13.....	676	143	62	39	69	35	.....	.....	.....	490	295	831
14.....	824	143	30	30	78	60	.....	.....	.....	458	271	664
15.....	496	105	62	39	57	46	.....	.....	.....	458	236	598
16.....	430	105	74	74	66	27	.....	.....	.....	458	173	562
17.....	370	105	74	62	69	24	.....	.....	.....	451	157	490
18.....	370	105	74	50	43	69	.....	.....	.....	451	150	549
19.....	370	89	74	39	33	50	.....	.....	.....	378	166	562
20.....	306	74	62	62	93	48	.....	.....	.....	362	256	496
21.....	306	105	50	74	43	271	.....	.....	.....	347	265	490
22.....	370	143	50	39	54	46	.....	.....	.....	356	256	442
23.....	306	123	50	30	98	120	.....	.....	.....	347	265	388
24.....	306	105	50	30	110	22	.....	.....	.....	338	332	496
25.....	306	105	50	30	54	93	.....	.....	.....	285	307	474
26.....	306	105	50	30	33	120	.....	.....	.....	307	256	483
27.....	306	74	50	30	83	123	.....	.....	.....	332	248	1,420
28.....	306	74	50	30	92	173	.....	.....	.....	307	295	1,080
29.....	306	123	50	30	135	150	.....	.....	.....	271	496	890
30.....	276	89	50	39	93	85	.....	.....	.....	248	506	736
31.....	248	74	.....	50	.....	116	.....	.....	.....	.....	394	.....
Mean..	466	125	63	43	63	82	.....	.....	.....	513	276	771

a No record; discharge estimated as 46 sec.-ft.

NOTE.— January to March, inclusive, ice period; not published.

Monthly discharge of CANANDAIGUA OUTLET AT ALLOWAY, for the year ended June 30, 1917

[Drainage area, 440 square miles.]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	824	248	466	1.059	1.22
August.....	248	74	125	0.284	0.33
September.....	105	30	63	0.143	0.16
October.....	74	22	43	0.098	0.11
November.....	110	28	63	0.143	0.16
December.....	271	22	82	0.186	0.21
January.....	.....	.....	.....	.....	.....
February.....	.....	.....	.....	.....	.....
March.....	.....	.....	.....	.....	.....
April.....	1,480	248	513	1.166	1.30
May.....	506	150	276	0.627	0.72
June.....	2,490	332	771	1.752	1.95

NOTE.— January to March, inclusive, ice period; not published.

FLINT CREEK

DESCRIPTION

Flint creek is a tributary to Canandaigua outlet, entering the outlet at Phelps. Flint creek rises in northern Steuben county near the junction of the Ontario, Yates and Steuben county lines. It flows in general northeasterly, having a total length of 35 miles. The drainage basin is relatively long and narrow and the stream valley above Gorham, about 14 miles from the mouth, comprises a deep, narrow valley bordered by steep and in some cases precipitous slopes, the bottom of the valley being relatively flat and having an average width of about one mile. The elevation of the valley is about 880 feet above tide. This valley is intermediate between and nearly parallel with Keuka and Canandaigua lakes, and it is apparently an unoccupied lake bottom of the finger lake series. Between the villages of Potter and Gorham the bottom of the valley is occupied by an extensive marsh, having a length of about 8 miles and an average width of one mile. Flint creek enters the head of this marsh at Potter and leaves the marsh at Gorham. Short lateral tributaries enter the marsh from the steep side slopes. The marsh is largely timber covered. There is a water-power dam at Gorham, which controls the level of Flint creek at the outlet from the marsh. Power is developed for small mills at Orleans, Flint, Stanton and other places. Above the head of Gorham marsh the sides of the stream valley rise to a height of 800 to 1,000 feet above the stream. The valley slopes are generally round and not serrated, as in the case of most of the other slopes bordering finger lake valleys, and there are but few permanent tributaries to upper Flint creek.

FLINT CREEK AT PHELPS

A gaging station was established on Flint creek at a private highway bridge located about $\frac{1}{4}$ mile south of Phelps Junction, on August 5, 1910, by this Department. Readings are taken each morning and night from a standard weight-and-chain gage located on the downstream side of the bridge. The stream channel is fairly straight and uniform above and below the gage, but the bed of the stream is rock and contains some loose boulders, especially near the margins of the stream.

The datum of the gage is referred to an arbitrary bench-mark, elevation 100.00, on the downstream side of the right-hand abutment. The elevation of water-surface, when the gage reads zero, is 95.86.

This station was abandoned September 30, 1916.

Daily gage height, in feet, of FLINT CREEK AT PHELPS, for the year ended June 30, 1917. Edward Fitzgerald, Observer

DAY	July	Aug.	Sept.	DAY	July	Aug.	Sept.
1.....	2.32	1.72	1.50	16.....	1.98	1.62	1.62
2.....	2.22	1.72	1.45	17.....	1.95	1.55	1.60
3.....	2.22	1.62	1.48	18.....	1.95	1.50	1.60
4.....	2.18	1.75	1.48	19.....	1.90	1.55	1.53
5.....	2.15	1.65	1.48	20.....	1.82	1.50	1.52
6.....	2.10	1.62	1.48	21.....	1.82	1.62	1.50
7.....	2.02	1.72	1.58	22.....	1.85	1.62	1.50
8.....	1.95	1.60	1.58	23.....	1.80	1.55	1.45
9.....	1.98	1.65	1.52	24.....	1.90	1.62	1.45
10.....	2.00	1.68	1.58	25.....	1.92	1.52	1.42
11.....	1.98	1.62	1.60	26.....	1.95	1.58	1.45
12.....	1.92	1.68	1.52	27.....	1.92	1.55	1.48
13.....	2.30	1.65	1.58	28.....	1.83	1.58	1.48
14.....	2.32	1.70	1.52	29.....	1.70	1.58	1.45
15.....	2.05	1.62	1.68	30.....	1.75	1.52	1.50
				31.....	1.70	1.52	.....

OWASCO OUTLET

DESCRIPTION

Owasco lake is one of the finger lake group in central New York and is generally rated as the sixth in size. It is about 11 miles long and has a maximum width of 1.25 miles. It has a water-surface area of approximately 10.4 square miles and is drained by Owasco outlet.

The lake extends in a north and south direction and lies wholly within the boundaries of Cayuga county. The southern half of the lake, on both the east and west sides, is flanked by steep, sloping hills, rising to elevations of 500 to 800 feet above the lake surface, which is at an elevation of 710 feet above tide-water. These hills are rather deeply indented by numerous small streams that enter the lake at almost right angles from either side. To the south of the head of the lake and extending for some 17 or 18

miles is a rather narrow valley, the floor of which is about one-half mile wide at the lake and narrows as it approaches the southern extremity. This valley is drained by Owasco inlet, which rises near Freeville in Tompkins county.

The dividing line for the drainage basin is at an elevation of from 700 to 1,300 feet above sea-level on the west and attains an altitude of some 1,600 feet on the east. The western line falls about 2 miles back from the lake; the eastern divide extends some 7 or 8 miles. The general shape of the drainage basin is long and narrow, the northern end terminating on the shores of Seneca river, into which the waters drain.

Owasco lake occupies about the center of the drainage basin north and south. Northward from the foot of the lake the descent is very rapid, there being 325 feet fall in the 17 miles between the outlet and Seneca river. One hundred and ten feet of this fall is practically within the city limits of Auburn and is utilized by the numerous manufacturing interests in that city. From a point just above Troopsville to Port Byron, a distance of about 5 miles, there is a fall of 130 feet, very little of which is developed. A State dam about one mile below the outlet of the lake practically controls the low and medium flow of this drainage basin. The drainage area is representative of the farming district in central New York and is fairly well timbered.

OWASCO OUTLET NEAR AUBURN

Location.— On the farm of Charles H. Pearce, 2 miles below the center of the city of Auburn, Cayuga county, and $3\frac{3}{4}$ miles below the State dam at the outlet of Owasco lake.

Drainage area.— 206 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.— November 17, 1912, to June 30, 1917.

Gage.— Gurley water-stage recorder in a concrete shelter on the left bank on the farm of Charles H. Pearce. Recorder inspected by Charles H. Pearce.

Discharge measurements.— Made by wading directly opposite the gage in low water and from a cable at the same section in high water.

Channel and control.—A low concrete control has been constructed about 15 feet below the gage. Crest of control is 1 foot wide and the slopes of both upstream and downstream faces are 1 on 2. A small horizontal apron built on a level with the bed of the stream extends downstream $2\frac{1}{2}$ feet from toe of dam. Mean elevation of the left-hand end of the dam for a distance of 50 feet is gage height 1.28 feet; the remaining 50 feet of the crest of the dam is at gage height 2.12 feet.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 3.47 feet from 8:15 to 8:30 A. M., June 30; discharge, 1,070 second-feet. Minimum stage not recorded.

1912–1917: Maximum stage, 6.4 feet during period March 25 to 30, 1913, determined by leveling from flood-marks; discharge, 2,750 second-feet. Minimum stage from water-stage recorder, 1.41 feet at 1 A. M., October 15, 1915; discharge, 5.6 second-feet.

Ice.—Stage-discharge relation seldom affected by ice.

Diversions.—An average flow of about 10 second-feet is pumped from Owasco lake for the municipal water-supply of the city of Auburn. Proportion returning to stream above the gaging station is not known.

Regulation.—Large diurnal fluctuation in flow during low-water periods due to mills in the city of Auburn and seasonal flow regulated at the State dam.

Accuracy.—Stage-discharge relation permanent; not affected by ice during year. Rating curve well defined between 1 and 1,700 second-feet. Operation of the water-stage recorder satisfactory throughout year except during periods when it was not in operation. Daily discharge ascertained by averaging the hourly discharge. Records excellent except during period of no gage height and leakage under the control. See note to table of daily discharge.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurement of OWASCO OUTLET NEAR AUBURN, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Nov. 9	E. D. Burchard	2.16	173
Nov. 9	E. D. Burchard	1.69	67.2
Nov. 9	E. D. Burchard	2.00	135
Nov. 9	E. D. Burchard	2.12	159
Nov. 13	E. D. Burchard	2.18	155
Feb. 5	E. D. Burchard	2.34	221
May 15	E. D. Burchard	2.63	359

NOTE.—All measurements by wading.

Daily discharge, in second-feet, of OWASCO OUTLET NEAR AUBURN, for the year
ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	298	136	120	38.0	95.7	96.5	104		163	758	339	448
2	270	130	113	103	89.7	90.1	112		158	776	324	434
3	258		74.2	98.0	88.8	55.0	109		152	787	307	402
4	260		105	100	102	106	92.2		181	830	303	401
5	258		132	98.8	10.0	98.8	119		177	814	313	407
6	257		141	99.1	61.8	96.5	116	175	178	836	323	406
7	246		138	80.1	67.0	93.0	89.4	173	158	836	342	447
8	226		133	57.0	70.8	87.9	116	161	172	824	366	551
9	196		140	103	69.3	82.5	119	165		811	404	745
10	221	84.4	53.0	85.8	82.1	58.7	118	158		807	397	760
11	219	137	107	91.6	91.0	108	130			789	374	855
12	213	124	124	92.5	24.9	98.2	120			761	360	908
13	204	82.9	117		112	98.3	130			730	334	889
14	199	132	120		87.1	97.9	120			723	351	805
15	208	131	132		83.6	102	147			686	335	
16	174	128	108		90.3	87.7				696	341	
17	214	135	65.3		82.9	75.1			275	704		
18	212	131	112		75.3	113			270	671		
19	208	151	113		56.1	107			282	644		
20	206	54.1	107		97.4	102		169	291	634		
21	185	107	108		88.5	103		164	317	591		
22	187	131	113		87.3	109		171	364	545		
23	138	133	113		83.3	97.0		166	444	454		677
24	194	125	48.3		82.6	69.3		162	543	355		663
25	184	130	107		71.5	84.7		209	633	294		658
26	172	127	105		59.2	117		184	704	350	340	726
27	174	55.4	111		96.3	108		169	738	348	318	914
28	173	104	111		85.2	101		160	791	398	342	918
29	171	120	116		122	114			807	380	377	939
30	148	125	103		68.4	91.5			755	356	399	941
31	140	121		92.4		75.4			771		432	
Mean...	207	119	110	84.4	79.4	94.2	126	164	358	639	348	693

NOTE.—Mean discharge estimated as follows: August 3 to 9, 120 second-feet; October 13 to 30, 82.0 second-feet; January 16 to 31, 135 second-feet; February 1 to 5, 155 second-feet; February 11 to 19, 160 second-feet; March 9 to 16, 220 second-feet; May 17 to 25, 340 second-feet; June 15 to 22, 740 second-feet. During November a leak was discovered under the control, discharging 20 to 25 second-feet. This was assumed to have started October 12. The leak was repaired November 5. Daily discharge, October 31 to November 4, includes this leakage.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 121

Monthly discharge of OWASCO OUTLET NEAR AUBURN, for the year ended June 30, 1917

(Drainage area, 206 square miles)

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July	288	a 138	207	1.00	1.15
August	137	a 55	119	0.578	0.67
September	141	a 48	110	0.534	0.60
October			84.4	0.410	0.47
November	122	b 10.0	79.4	0.385	0.43
December	117	a 55.0	94.2	0.457	0.53
January			126	0.612	0.71
February			164	0.796	0.83
March			358	1.74	2.01
April	836	294	639	3.10	3.46
May			348	1.69	1.95
June			693	3.36	3.75
The year			251	1.22	16.56

a Sunday.

b Estimated.

NOTE.— The figures in the above table indicate the flow of the river as regulated by the dam at the outlet of Owasco lake and by the mills in Auburn.

ONONDAGA LAKE

DESCRIPTION

Onondaga lake, situated north of the city of Syracuse, is about $4\frac{1}{2}$ miles long, having an average width of 1 mile and a surface area of 4.7 square miles. The surface elevation is about 365, Barge canal datum, and has an average annual range of nearly 6 feet.

The drainage area, including the lake surface, is about 288 square miles, lying mostly to the south and southwest. Included in this area is Otisco lake with a water-surface of 3.3 square miles, discharging through Nine-Mile creek, and a group of small lakes drained by Onondaga creek. Besides these principal tributaries there are a few small streams entering the lake from the north and east.

Onondaga lake discharges into the Seneca river through Onondaga outlet, which is canalized as a part of the Barge canal system. A low navigable stage at elevation 363.0 will be maintained on this lake by the dam on the Oswego river at Phoenix.

ONONDAGA LAKE AT SYRACUSE

This station is located at the head, or south end of Onondaga lake. Until October 1, 1916, the water-surface was obtained by measuring down from a reference point on the west abutment of the New York Central railroad bridge over Onondaga creek. Since that date the reference point has been located at the new New York Central railroad bridge over the terminal channel at Syracuse, being on the top of the pier on the east side of the channel at the angle in the pier near the north girder of the bridge.

Readings are made once daily — at about 8 A. M. — to inches.

Daily elevation of water-surface (B. C. datum) of ONONDAGA LAKE AT SYRACUSE, for the year ended June 30, 1917. Chas. Bourke, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	365.03	364.11	363.36	363.98	363.65	364.06	364.15	364.23	364.31	365.15	364.23	364.48
2	364.95	364.03	363.36	363.98	363.65	364.23	364.15	364.23	364.23	364.98	364.23	364.40
3	364.86	363.95	363.36	363.90	363.65	364.23	364.15	364.23	364.15	365.15	364.23	364.33
4	364.78	363.86	363.36	363.90	363.65	364.23	364.15	364.23	364.15	365.15	364.23	364.23
5	364.70	363.86	363.28	363.90	363.73	364.31	364.15	364.23	364.23	365.15	364.23	364.13
6	364.61	363.86	363.28	363.90	363.73	364.23	364.15	364.23	364.23	365.23	364.23	364.23
7	364.53	363.86	363.28	363.90	363.73	364.15	364.15	364.23	364.23	365.23	364.23	364.43
8	364.45	363.86	363.28	363.98	363.73	364.15	364.23	364.15	364.15	365.40	364.23	365.03
9	364.53	363.86	363.28	363.98	363.73	364.15	364.40	364.15	363.90	365.56	364.23	365.23
10	364.53	363.78	363.28	364.06	363.73	364.23	364.40	364.15	364.81	365.73	364.23	365.13
11	364.53	363.78	363.28	364.06	363.73	364.23	364.31	364.06	363.90	365.73	364.23	365.23
12	364.53	363.78	363.20	364.06	363.81	364.23	364.23	364.06	364.56	365.56	364.23	365.53
13	364.53	363.78	363.20	364.15	363.81	364.23	364.15	363.98	364.65	365.23	364.15	365.53
14	364.78	363.86	363.20	364.15	363.81	364.15	364.15	363.90	364.73	365.15	364.06	365.53
15	364.70	363.78	363.28	364.15	363.81	364.15	364.23	363.81	364.73	365.15	364.06	365.53
16	364.61	363.70	363.20	364.06	363.81	364.15	364.15	363.73	364.73	365.15	364.15	365.33
17	364.45	363.61	363.20	364.06	363.81	364.15	364.15	363.73	364.73	365.15	364.15	365.03
18	365.36	363.61	363.36	364.06	363.81	364.15	364.15	363.81	364.73	365.15	364.06	364.73
19	364.28	363.61	363.36	363.98	363.81	364.15	364.15	363.81	364.73	365.15	364.06	364.73
20	364.28	363.61	363.36	363.98	363.81	364.15	364.15	363.90	364.56	365.15	364.15	364.63
21	364.28	363.61	363.36	364.06	363.81	364.15	364.15	363.90	364.31	365.23	364.15	364.93
22	364.28	363.61	363.36	363.98	363.81	364.15	364.23	363.90	364.31	364.98	364.31	364.98
23	364.28	363.61	363.95	363.98	363.90	364.15	364.23	363.98	364.31	365.73	364.31	364.73
24	364.28	363.53	363.95	363.90	363.90	364.15	364.15	363.98	364.23	364.40	364.31	364.63
25	364.28	363.45	363.95	363.90	363.90	364.15	364.15	363.98	365.48	364.40	364.31	364.73
26	364.28	363.45	363.86	363.90	363.90	364.15	364.15	364.06	365.65	364.40	364.23	364.93
27	364.28	363.53	363.78	363.81	363.90	364.15	364.15	364.56	365.65	364.40	364.31	365.43
28	364.20	363.61	363.78	363.81	363.90	364.15	364.06	364.56	365.65	364.40	364.31	365.53
29	364.20	363.53	363.86	363.73	363.90	364.15	364.06	.....	365.65	364.31	364.40	365.63
30	364.11	363.53	363.95	363.65	363.90	364.15	364.23	.....	365.56	364.23	364.48	365.73
31	364.11	363.45	.....	363.65	.....	364.15	364.23	.....	365.23	.....	364.48	.....

ONONDAGA OUTLET AT LONG BRANCH

This station is located at the outlet of Onondaga lake at Long Branch. The staff gage is secured to a willow tree on the right, or east bank of the stream about 300 feet above the highway bridge over the outlet at Long Branch and is maintained for water-surface elevations only.

It is read once daily — at 8 A. M.— and indicates water-surface of Onondaga lake.

Daily elevation of water-surface (B. C. datum) of ONONDAGA OUTLET NEAR LONG BRANCH, LIVERPOOL P. O., for the year ended June 30, 1917. Mark Kennedy, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	364.6	363.8	363.0	363.8	363.8	364.1	364.4	364.4	364.6	365.0	364.0	364.2
2.....	364.6	363.8	363.0	363.8	363.8	364.1	364.4	364.3	364.5	365.0	364.0	364.3
3.....	364.8	363.8	362.9	363.8	363.8	364.1	364.4	364.3	364.5	365.1	364.0	364.3
4.....	364.8	363.8	362.9	363.8	363.8	364.1	364.4	364.3	364.4	365.1	364.1	364.3
5.....	364.8	363.7	362.9	363.8	363.8	364.2	364.4	364.3	364.4	365.3	364.1	364.3
6.....	364.7	363.7	363.0	363.8	363.8	364.2	364.4	364.3	364.4	365.5	364.1	364.3
7.....	364.7	363.7	363.0	363.8	363.8	364.2	364.4	364.3	364.4	365.8	364.1	364.3
8.....	364.6	363.7	363.0	363.7	363.8	364.2	364.4	364.3	364.4	365.8	364.1	364.3
9.....	364.6	363.7	363.0	363.7	363.8	364.2	364.4	364.3	364.5	365.7	364.0	364.4
10.....	364.6	363.6	363.0	363.6	363.8	364.3	364.3	364.2	364.5	365.5	364.0	364.4
11.....	364.5	363.6	363.1	363.7	363.8	363.3	364.3	364.2	364.5	365.3	364.0	364.5
12.....	364.5	363.6	363.1	363.7	363.9	364.3	364.4	364.2	364.5	365.1	364.0	364.5
13.....	364.4	363.6	363.1	363.6	363.9	364.3	364.4	364.2	364.5	365.0	364.0	364.5
14.....	364.4	363.5	363.0	363.6	363.9	364.4	364.4	364.2	364.4	364.9	363.9	364.7
15.....	364.3	363.5	363.0	363.6	363.8	364.4	364.3	364.2	364.4	364.9	363.9	364.7
16.....	364.3	363.4	363.1	363.7	363.8	364.4	364.3	364.2	364.4	364.8	363.9	364.9
17.....	364.3	363.4	363.1	363.7	363.8	364.4	364.3	364.3	364.5	364.8	364.0	364.9
18.....	364.3	363.4	363.2	363.7	363.8	364.3	364.3	364.3	364.6	364.7	364.0	365.0
19.....	364.2	363.4	363.2	363.7	363.9	364.3	364.4	364.3	364.6	364.7	364.0	365.0
20.....	364.2	363.3	363.3	363.8	363.9	364.3	364.4	364.3	364.8	364.6	364.1	365.0
21.....	364.2	363.3	363.3	363.8	363.9	364.3	364.4	364.3	364.8	364.5	364.1	364.9
22.....	364.2	363.3	363.4	363.8	363.9	364.3	364.4	364.4	364.9	364.5	364.1	364.9
23.....	364.2	363.3	363.4	363.7	363.9	364.2	364.5	364.4	365.1	364.4	364.1	364.9
24.....	364.1	363.2	363.4	363.7	364.0	364.2	364.5	364.4	365.1	364.3	364.1	364.9
25.....	364.1	363.2	363.5	363.8	364.0	364.3	364.5	364.5	365.2	364.2	364.2	365.0
26.....	364.1	363.2	363.5	363.8	364.0	364.3	364.5	364.5	365.2	364.1	364.2	365.2
27.....	364.0	363.2	363.6	363.8	364.0	364.4	364.5	364.6	365.2	364.0	364.1	365.3
28.....	364.0	363.1	363.7	363.8	364.0	364.4	364.4	364.6	365.2	364.0	364.1	365.4
29.....	364.0	363.1	363.7	363.8	364.1	364.4	364.4	.....	365.1	364.0	364.1	365.5
30.....	363.9	363.0	363.8	363.8	364.1	364.4	364.4	.....	365.1	364.0	364.2	365.7
31.....	363.9	363.0	.....	363.8	.....	364.4	364.4	.....	365.0	.....	364.2	.....

ONONDAGA CREEK

DESCRIPTION

Onondaga creek has its source in the extreme southerly part of Onondaga county and flows in a northerly direction to Onondaga lake at Syracuse.

The west branch of Onondaga creek rises in the hilly region a few miles southwest of Syracuse and enters the main stream about $1\frac{1}{2}$ miles south of Indian village.

WEST BRANCH OF ONONDAGA CREEK AT SOUTH ONONDAGA

Location.—At the highway bridge in the village of South Onondaga, Onondaga county, about $1\frac{3}{4}$ miles above the mouth of the creek and about 10 miles above the city of Syracuse.

Drainage area.—20.8 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—August 22, 1916, to June 30, 1917.

Gage.—Staff on downstream side of right abutment of bridge.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Fine and coarse gravel; probably shifting.

Extremes of stage.—Current year: Maximum stage recorded, 2.86 feet at 7:05 A. M., March 12. Minimum stage recorded, 0.98 foot at several times in September.

Ice.—Stage-discharge relation probably affected by ice.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Sufficient data have not been obtained for publication of discharge.

Discharge measurements of WEST BRANCH OF ONONDAGA CREEK AT SOUTH ONONDAGA, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 23.....	E. D. Burchard.....	1.07	8.00
Aug. 23.....	E. D. Burchard.....	1.07	7.80
Oct. 30.....	E. D. Burchard.....	1.22	9.58
Oct. 30.....	E. D. Burchard.....	1.20	8.83
May 15.....	E. D. Burchard.....	1.27	20.6
June 13.....	O. W. Hartwell.....	1.36	24.6

NOTE.—All measurements made by wading.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 125

Daily gage height, in feet, of WEST BRANCH OF ONONDAGA CREEK AT SOUTH ONONDAGA,
for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....			1.03	1.13	1.36	1.27				1.92	1.36	1.37
2.....			1.05	1.11	1.23	1.24				2.00	1.34	1.33
3.....			1.02	1.10	1.20	1.21				2.01	1.30	1.30
4.....			1.01	1.06	1.16	1.24				1.77	1.27	1.28
5.....			1.00	1.06	1.36	1.34				1.59	1.53	1.30
6.....			1.00	1.04	1.27	1.28				1.75	1.69	1.38
7.....			.99	1.04	1.19	1.22			1.40	1.91	1.54	2.06
8.....			1.00	1.04	1.10	1.23			1.39	1.71	1.44	2.07
9.....			1.00	1.06	1.21	1.24			1.40	1.60	1.39	1.65
10.....			1.00	1.06	1.29	1.32			1.41	1.52	1.33	1.51
11.....			1.00	1.03	1.22	1.30			2.30	1.49	1.33	1.52
12.....			.99	1.03	1.17	1.29			2.66	1.49	1.49	1.42
13.....			1.00	1.13	1.17	1.23			2.07	1.47	1.34	1.33
14.....			.99	1.28	1.20	1.20			1.33	1.43	1.29	1.29
15.....			1.36	1.16	1.25	1.19			1.68	1.42	1.26	1.28
16.....			1.16	1.09	1.18	1.12			1.64	1.42	1.25	1.41
17.....			1.04	1.13	1.19	1.14			1.87	1.39	1.28	1.29
18.....			1.07	1.09	1.25	1.23			1.78	1.37	1.24	1.25
19.....			1.07	1.15	1.25	1.22			1.69	1.39	1.21	1.26
20.....			1.06	1.17	1.29	1.19			1.69	1.54	1.54	1.36
21.....			1.00	1.36	1.26	1.20			1.87	1.47	1.37	1.33
22.....		1.00	1.03	1.19	1.17	1.19			1.99	1.36	1.44	1.22
23.....		1.06	1.07	1.15	1.34	1.22			2.14	1.34	1.44	1.16
24.....		1.03	1.04	1.10	1.45	1.28			2.59	1.24	1.37	1.39
25.....		1.00	1.06	1.15	1.29	1.26			2.09	1.29	1.34	1.42
26.....	1.00	1.07	1.19	1.19	1.19	1.25			2.13	1.32	1.28	1.87
27.....	1.01	1.06	1.11	1.19	1.31	1.31			2.13	1.38	1.30	2.37
28.....	1.04	1.03	1.16	1.23	1.44	1.44			2.14	1.31	1.32	1.64
29.....	1.02	1.37	1.09	1.22	1.36	1.36			2.09	1.27	1.81	1.68
30.....	1.01	1.31	1.16	1.31	1.24	1.24			1.85	1.38	1.59	1.55
31.....	1.02		1.10			1.21			1.75		1.38	

NOTE.—Observations suspended, January 1 to March 6.

ONEIDA RIVER BASIN

DESCRIPTION

The territory drained by the Oneida river is, in shape, roughly a square of about 40 miles on the side, lying west of the upper portion of the Mohawk drainage basin. From its northeast corner a peninsula-like area of about 80 square miles, drained by the upper portion of East branch Fish creek, projects northward between the Salmon and Black river drainage areas.

The total drainage area is 1,493 square miles, of which the run-off from 1,353 square miles, or slightly over 90 per cent, passes through Oneida lake, which has a water-surface of 78 square miles, or 53¼ per cent of the area above its outlet, and an annual range of surface of about 3 to 6 feet, which together with the dam

and gate at Caughdenoy offers facilities for considerable regulation of the flow in the Oneida river.

There is a small amount of local storage for and diversion to the old Erie canal in the southern portion of this basin. Water is also diverted into this drainage area from the Black and Mohawk basins through the summit levels of the old Erie and new Barge canals.

The overflow from this basin through the Oneida river unites with that of the Seneca river at Three River Point to form the Oswego river.

The section of the Barge canal passing through the Oneida river basin was opened to navigation in May, 1917, for boats of 8 feet draft. This portion extends from the summit level at Rome by land-line to Sylvan Beach, thence through Oneida lake and Oneida river to Three River Point, where the Oneida and Seneca rivers unite to form the Oswego river, thence by the Oswego canal to Lake Ontario.

For tables of areas of this drainage basin see page 63.

ONEIDA RIVER

The Oneida river is a winding stream about $17\frac{3}{4}$ miles long, extending from Brewerton at the outlet of Oneida lake to Three River Point, where it unites with the Seneca to form the Oswego river.

The Oneida river has been canalized in connection with the construction of the Barge canal. Two large and two smaller bends have been cut off, but on the largest cut-off, that opposite the new Caughdenoy dam, is located Barge canal lock No. 23 and normally only that portion of the flow of the river required for canal purposes at the lock passes through this channel.

About four miles below Brewerton and about two and a half miles below the east end of the Caughdenoy cut-off and about 600 feet above the old lock and highway bridge, a dam has been constructed to retain a low navigable surface in Oneida lake and above lock No. 23 at elevation 369.9. This dam is a concrete structure with a straight ogee type crest 415 feet long at elevation

369.63. In the old canal lock a vertical lift-gate has been constructed with a clear span of thirty feet nine inches and sill at elevation 362.73. The dam was completed in the summer of 1909, and the gate, January 1, 1914.

Below lock No. 23 a low navigable surface is maintained at elevation 363.0 by the dam on the Oswego river at Phoenix.

Occasional apparent inconsistencies in the tables of water-surface elevation, where the water-level at an upstream gage is recorded slightly lower than at a point farther downstream, are, as a rule, not the result of actual mistakes, but arise from the fact that most of the gages are read to the nearest tenth foot only, and also from the fact that streams and lakes are sometimes affected by wind to such an extent as to cause the water-surface to be slightly higher at the downstream end of a level reach than at the upstream end.

ONEIDA RIVER AT BREWERTON

This station is located on the Oneida river at Brewerton about 1,500 feet downstream from Oneida lake and indicates lake surface very closely. It was established April 22, 1904, to determine water-surface elevations only. The staff gage on the downstream side of the New York State boat-house was superseded on July 21, 1916, by a standard Type A gage. This gage, No. 185, is secured to the east end of the concrete dock below the Brewerton highway bridge and has a range of 8 feet, between elevations 368.0 and 376.0. The gage bench-mark is a square chisel cut, in top of concrete dock wall about 3 feet from the end and is at elevation 375.372 (B. C. datum).

The gage was read twice daily to October 1 and once daily since, to half-tenths.

Revision of tables.—Errors having been found in the benchmarks as noted in the Report of State Engineer and Surveyor for 1908, page 486, and in the Report for 1915, Vol. II, page 125, it has been considered advisable to revise such tables as are affected and republish all the tables of water-surface elevations from 1904 to 1916, inclusive. These tables are published in the following pages.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1904	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.					373.93	371.73	370.23	369.73	369.83	369.63	370.53	369.83
2.					372.83	371.63	370.13	369.73	369.73		370.63	369.93
3.					373.73	371.43	370.13	369.73	369.73	369.83	370.53	370.03
4.					373.63	371.33	370.13	369.73		369.93	370.43	
5.					373.53		370.13	369.73	369.73	369.93	370.43	369.83
6.					373.53	371.13	370.23	369.73	369.73	369.93		369.93
7.					373.43	371.13	370.13		369.73	369.93	370.43	369.83
8.						371.13	370.03	369.63	369.73	369.93	370.43	369.93
9.					373.33	371.13	370.13	369.63	369.73		370.43	369.93
10.					371.03	371.23		369.73	369.63	370.03	370.23	369.83
11.					372.93	370.93	370.03	369.43		369.93	370.23	
12.					372.83		369.93	369.43	369.53	370.33	370.23	369.93
13.					372.83	370.93	369.83	369.43	369.53	370.23		369.73
14.					372.73	370.93	369.93		369.53	370.33	370.13	369.73
15.					372.63	370.83	369.93	369.33	369.43	370.23	370.13	369.73
16.					372.63	370.83	369.93	369.33	369.53		370.13	369.63
17.					372.63	370.83		369.23	369.43	370.23	370.23	369.73
18.					372.63	370.63	369.93	369.13		370.23	370.23	
19.					372.43		369.93	369.23	369.43	370.23	370.23	369.73
20.					372.23	370.73	369.93	369.33	369.53	370.33		369.73
21.					372.13	370.43	369.93		369.43	370.23	370.13	369.73
22.				374.03		370.43	369.83	369.73	369.53	370.33	370.13	369.63
23.				374.03	371.93	370.53	369.93	369.73	369.53		370.03	369.63
24.				373.83	371.93	370.43		369.93	369.53	370.43	369.93	369.73
25.				373.63	371.83	370.43	369.83	369.93		370.53	369.93	
26.												
27.				373.83	371.73		369.73	369.63	369.53	370.53	370.03	369.73
28.				373.83	371.63	370.43	369.83	369.93	369.63	370.43		369.73
29.				371.83	371.63	370.43	369.83	369.73	369.53	370.53	370.03	369.83
30.				372.83		370.33	369.83	369.73	369.73	370.53	369.93	369.93
31.				373.93	371.63	370.23	369.83	369.83	369.63		370.03	370.13
					371.63			369.73		370.53		370.13

No record on dates left blank.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1906, page 486.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1905	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.		370.63	370.13	374.43	372.53	370.73	371.33	370.43	370.23		370.83	371.43
2.	370.73	370.63	370.13		372.53	370.73		370.43	370.33	370.53	370.83	370.83
3.	370.73	370.63	370.13	374.53	372.53	370.63	371.33	370.43		370.43	371.13	
4.	370.73	370.53	370.13	374.53	372.53		371.23	370.53	370.43	370.33	370.93	371.53
5.	370.73			374.63	372.53	370.53	371.23	370.43	370.73	370.33		371.63
6.	370.93	370.63	369.93	374.73	372.33	370.53	371.23		370.83	370.43	371.43	371.53
7.	370.73	370.43	370.23	374.93	371.93	370.83	371.13	370.43	370.93	370.33	371.13	371.63
8.		370.43	370.03	374.93	372.13	370.53	371.03	370.43	370.93		370.93	371.73
9.	370.93	370.43	370.03		372.13	370.53		370.43	370.93	370.23	370.93	371.93
10.	370.93	370.43	369.93	374.63	371.93	370.63	371.03	370.43		370.43	371.23	
11.	370.83	370.33	370.03	374.63	371.93		370.93	370.43	370.93	370.83	371.23	371.73
12.	370.93			374.53	371.83	370.53	370.93	370.43	370.93	370.33		371.73
13.	370.93	370.43	370.03	374.53		370.53	370.93		370.93	370.33	371.23	371.73
14.	370.93	370.43	370.03	374.43		370.53	370.83	370.43	370.93	370.73	371.33	371.63
15.		370.33	369.93	374.23	371.73	370.53	370.83	370.63	371.03		371.33	371.73
16.	370.83	370.33	369.93		371.73	370.53		370.43	370.83	370.83	371.23	371.63
17.	370.83	370.33	369.93	373.93	371.63	370.53	370.83	370.53		370.93	371.23	
18.	370.73	370.23	369.93	373.83	371.53		370.73	370.53	370.83	370.93	371.23	371.43
19.	370.73			373.73	371.43	370.93	370.73	370.53	370.93	370.93		371.33
20.	370.73	370.23	370.03	373.73	371.33	370.93	370.63		370.83	371.03	371.13	371.23

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 129

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON —
Continued

1905	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21...	370.83	370.23	370.13	373.43	.....	371.03	370.63	370.43	370.83	371.13	371.13	371.33
22...	370.23	370.33	373.43	371.23	371.13	370.63	370.43	370.83	.....	371.13	371.23	371.23
23...	370.73	370.12	370.53	.....	371.23	371.23	370.33	370.73	371.13	371.03	371.43	371.43
24...	370.93	370.13	370.73	373.43	371.23	371.23	370.43	370.33	371.03	371.03	371.03	371.03
25...	370.63	370.12	371.13	373.23	371.13	.....	370.23	370.33	370.63	371.03	370.93	371.63
26...	370.73	.....	.....	373.23	370.93	371.23	370.23	370.23	370.63	371.13	.....	371.63
27...	370.73	370.13	371.93	373.13	370.93	371.23	370.23	.....	370.63	371.13	370.83	371.63
28...	370.63	370.12	372.53	372.93	.....	371.23	370.23	370.23	370.53	371.03	370.93	371.73
29...	.....	373.03	373.03	372.83	370.83	371.23	370.33	370.13	370.43	.....	370.83	371.73
30...	370.73	.....	373.43	.....	370.83	371.38	.....	370.23	370.43	370.93	370.93	371.63
31...	370.73	.....	373.93	.....	370.83	.....	370.43	370.23	.....	370.93	.....	.....

a Incorrectly published as 372.8, instead of 372.7; b Incorrectly published as 371.9, instead of 370.9; c Incorrectly published as 370.2, instead of 371.2, in Report of State Engineer and Surveyor for 1908, page 487.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 487.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1906	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1...	371.83	372.13	371.23	.....	372.03	370.63	.....	369.73	369.23	368.83	369.53	370.33
2...	371.83	372.03	371.23	372.13	371.92	370.53	370.63	369.73	.....	368.83	369.53	.....
3...	371.83	372.13	371.33	372.13	371.83	.....	370.53	369.73	369.13	368.83	369.53	370.43
4...	371.73	.....	.....	372.23	371.83	370.53	370.43	369.73	369.13	368.93	.....	370.43
5...	371.83	371.83	371.43	372.33	371.83	370.53	370.53	.....	369.13	368.93	369.53	370.53
6...	371.83	371.73	371.53	372.33	.....	370.43	370.53	369.83	369.13	369.03	369.53	370.53
7...	.....	371.63	371.53	372.43	371.78	370.43	370.53	369.83	368.93	368.83	369.53	370.53
8...	371.83	371.63	371.43	.....	371.73	370.53	.....	369.83	368.93	368.73	369.53	370.53
9...	371.73	371.43	371.43	372.33	371.63	370.83	370.43	369.73	368.93	368.73	369.53	.....
10...	371.73	371.33	371.43	372.33	371.43	.....	370.43	369.73	368.93	368.83	369.63	370.53
11...	371.63	.....	.....	372.43	371.53	370.93	370.43	369.73	368.93	368.93	.....	370.53
12...	371.63	371.33	371.43	372.53	371.43	370.93	370.43	.....	368.93	368.93	369.63	370.63
13...	371.63	371.23	371.33	372.53	.....	370.83	370.43	369.73	368.93	368.93	369.63	370.63
14...	.....	371.23	371.23	372.63	371.43	370.73	370.43	369.63	368.93	.....	369.63	370.73
15...	371.63	371.12	371.23	.....	371.43	370.73	.....	369.63	368.93	368.93	369.63	370.73
16...	371.03	371.13	371.13	372.73	371.43	370.73	370.23	369.63	368.93	368.93	369.73	370.73
17...	371.53	371.03	371.13	372.83	371.38	.....	370.23	369.63	368.73	368.93	369.73	370.73
18...	371.43	.....	.....	372.83	371.28	370.78	370.23	369.63	368.73	369.03	369.73	370.73
19...	371.43	370.93	371.03	372.83	371.03	370.68	370.13	.....	368.73	369.03	369.83	370.73
20...	371.33	370.93	371.03	372.78	.....	370.63	370.13	369.43	368.73	369.03	369.83	370.73
21...	.....	370.93	370.93	372.73	371.03	370.73	370.13	369.53	368.73	.....	369.03	370.73
22...	371.53	370.93	370.93	.....	371.03	370.78	.....	369.43	368.73	369.23	369.83	370.73
23...	371.63	371.03	370.93	372.43	370.98	370.63	370.13	369.43	368.93	369.23	369.83	370.73
24...	371.93	371.13	370.93	372.43	370.83	.....	370.03	369.43	368.83	369.23	369.93	370.93
25...	372.23	.....	.....	372.38	370.83	370.63	370.03	369.43	368.83	369.83	.....	370.93
26...	372.43	371.23	371.13	372.23	370.73	370.53	369.93	.....	368.83	369.33	370.13	370.93
27...	372.43	371.23	371.23	372.13	.....	370.58	369.93	369.23	368.83	369.33	370.23	370.83
28...	.....	371.23	371.43	372.13	370.93	370.43	369.93	369.83	368.83	.....	370.23	370.83
29...	372.33	.....	371.53	.....	370.83	370.43	369.93	369.83	368.83	369.43	370.23	370.83
30...	372.23	.....	371.73	372.03	370.83	370.43	369.83	369.23	.....	369.43	370.83	.....
31...	372.13	.....	371.93	.....	370.73	.....	369.73	369.23	.....	369.43	.....	370.93

a Incorrectly published as 368.7, instead of 368.7; b Incorrectly published as 367.5, instead of 368.5, in Report of State Engineer and Surveyor for 1908, page 487.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 487.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1907	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371.01	371.31	370.21	372.71	371.71	370.71	370.11	370.21	369.11	369.31	370.81	371.01
2	371.01	371.21	370.11	372.71	371.71	370.81	370.21	370.21	369.11	369.31	370.81	370.91
3	371.11	371.21	370.21	372.71	371.71	370.81	370.21	370.21	369.21	369.41	370.81	370.91
4	371.31	371.11	370.21	372.61	371.81	370.81	370.21	370.21	369.21	369.41	370.81	370.91
5	371.41	371.11	370.21	372.61	371.81	370.81	370.31	370.11	369.21	369.41	370.71	370.91
6	372.51	371.01	370.21	372.51	371.81	371.01	370.31	370.11	369.21	369.51	371.31	370.91
7	372.61	371.01	370.21	372.51	371.71	370.91	370.21	370.01	369.31	369.51	371.61	370.91
8	372.81	370.91	370.21	372.51	371.71	370.81	370.21	370.01	369.31	369.51	371.81	370.91
9	372.81	370.81	370.21	372.41	371.71	370.81	370.21	370.01	369.31	369.61	371.81	370.91
10	372.91	370.81	370.21	372.31	371.71	370.71	370.21	370.01	369.31	369.71	371.81	370.91
11	372.71	370.81	370.21	372.21	371.61	370.61	370.31	369.91	369.31	369.81	371.81	370.91
12	372.71	370.71	370.21	372.01	371.61	370.61	370.31	369.91	369.31	369.91	371.81	370.91
13	372.61	370.71	370.21	371.91	371.61	370.61	370.21	369.91	369.31	370.11	371.91	370.91
14	372.61	370.71	370.21	371.81	371.51	370.61	370.21	369.81	369.31	370.21	371.81	370.91
15	372.51	370.71	370.31	371.71	371.51	370.61	370.21	369.81	369.31	370.21	371.71	370.91
16	372.41	370.61	370.41	371.71	371.51	370.51	370.21	369.81	369.31	370.21	371.71	370.91
17	372.21	370.51	370.61	371.61	371.41	370.41	370.21	369.71	369.31	370.21	371.61	371.11
18	372.21	370.51	370.61	371.61	371.31	370.41	370.21	369.71	369.31	370.31	371.61	371.21
19	372.11	370.41	370.71	371.51	371.31	370.31	370.21	369.71	369.31	370.31	371.51	371.31
20	372.01	370.31	370.81	371.41	371.31	370.31	370.21	369.71	369.31	370.31	371.51	371.31
21	372.11	370.31	370.81	371.31	371.21	370.31	370.21	369.61	369.31	370.31	371.41	371.31
22	371.91	370.21	371.01	371.11	371.11	370.41	370.21	369.61	369.31	370.31	371.31	371.31
23	371.81	370.21	371.11	371.21	371.01	370.31	370.21	369.51	369.31	370.41	371.31	371.51
24	371.71	370.21	371.11	371.21	370.91	370.31	370.21	369.41	369.31	370.41	371.21	371.91
25	371.61	370.21	371.61	371.41	370.81	370.31	370.11	369.41	369.31	370.51	371.21	372.11
26	371.61	370.21	371.91	371.61	370.71	370.21	370.11	369.31	369.31	370.51	371.21	372.21
27	371.61	370.21	372.01	371.81	370.71	370.21	370.21	369.21	369.31	370.51	371.21	372.21
28	371.61	370.21	372.21	371.81	370.91	370.11	370.21	369.21	369.31	370.61	371.21	372.31
29	371.51	370.21	372.41	371.71	371.01	370.11	370.21	369.11	369.31	370.71	371.21	372.41
30	371.41	370.21	372.71	371.71	370.91	370.21	370.21	369.11	369.31	370.71	371.21	372.31
31	371.31	370.21	372.71	371.71	370.91	370.21	370.21	369.11	369.31	370.71	371.21	372.31

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 488.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1908	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	372.31	371.11	371.81	373.41	372.51	371.51	370.71	370.41	369.19	368.89	368.89	369.49
2	372.31	371.01	371.81	373.31	372.81	371.41	370.71	370.31	369.09	368.89	368.89	369.59
3	372.31	371.01	371.81	373.21	372.91	371.41	370.71	370.31	369.19	368.89	368.89	369.59
4	372.31	371.01	371.81	373.21	373.01	371.41	370.71	370.31	369.19	368.89	368.89	369.59
5	372.41	371.01	371.81	373.21	373.01	371.41	370.61	370.21	369.19	368.89	368.79	369.59
6	372.31	371.01	371.71	373.21	372.91	371.41	370.51	370.31	369.19	368.89	368.79	369.59
7	372.11	370.91	371.71	373.11	373.41	371.31	370.51	370.21	369.19	368.89	368.89	369.59
8	372.11	370.81	371.71	373.11	372.91	371.31	370.51	370.21	369.19	368.89	368.89	369.49
9	372.11	370.81	371.71	373.11	372.71	371.21	370.51	370.21	369.19	368.89	368.89	369.49
10	372.11	370.81	371.71	373.11	372.81	371.21	370.51	370.21	369.19	368.89	368.99	369.59
11	372.11	370.81	371.71	372.91	372.81	371.11	370.41	370.21	369.19	368.89	368.89	369.69
12	371.91	370.71	371.81	373.01	372.81	371.01	370.41	370.21	369.19	368.89	368.89	369.69
13	371.81	370.71	371.91	373.11	372.71	370.91	370.31	370.11	369.19	368.89	368.99	369.69
14	371.81	370.71	372.01	373.21	372.61	370.81	370.31	370.11	369.19	368.89	368.99	369.79
15	371.81	370.81	372.31	373.21	372.61	370.81	370.21	369.91	369.19	368.89	369.09	369.89
16	371.81	371.41	372.51	373.11	372.61	371.11	370.11	369.91	369.09	368.89	369.09	369.89
17	371.71	371.51	372.61	373.11	372.51	371.21	370.01	369.91	368.99	368.89	369.19	369.89
18	371.61	371.91	372.61	373.11	372.51	371.21	369.91	369.81	368.99	368.89	369.09	369.89
19	371.61	372.11	372.71	373.11	371.91	371.31	370.01	369.71	368.99	368.89	369.19	369.89
20	371.61	372.11	372.81	373.11	371.91	371.21	370.11	369.71	368.99	368.89	369.19	369.89

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 131

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON —
Continued

1903	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21....	371.51	372.11	372.81	372.81	371.91	371.11	370.31	369.71	368.99	368.89	369.29	370.09
22....	371.41	372.11	372.71	372.81	371.91	371.11	370.31	369.71	368.99	368.89	369.29	370.09
23....	371.31	372.11	372.71	373.11	371.91	371.11	370.61	369.51	368.99	368.89	369.29	370.09
24....	371.31	372.11	372.71	373.01	371.91	371.11	370.71	369.51	368.99	368.89	369.29	370.09
25....	371.31	372.01	372.71	373.01	371.91	371.01	370.81	369.41	368.89	368.89	369.39	370.09
26....	371.31	372.01	372.71	372.91	371.81	371.01	370.71	369.41	368.89	368.99	369.39	370.09
27....	371.31	372.01	372.81	372.91	371.81	370.91	370.61	369.69	368.89	369.09	369.39	370.09
28....	371.31	371.91	372.91	372.91	371.71	370.81	370.51	369.59	368.89	369.09	369.49	370.09
29....	371.31	371.91	373.21	372.71	371.71	370.71	370.51	369.39	368.99	368.99	369.49	370.19
30....	371.21	.....	373.31	372.71	371.71	370.71	370.51	369.39	369.09	368.89	369.49	370.19
31....	371.11	.....	373.41	.....	371.71	.....	370.41	369.29	.....	368.89	.....	370.19

* Incorrectly published as 372.18, instead of 373.18, in Report of State Engineer and Surveyor for 1910, page 367.

NOTE.— Supersedes table published in Report of State Engineer and Surveyor for 1910, page 367.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1909	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1....	370.19	371.99	373.09	372.59	373.79	372.09	370.79	370.49	370.19	369.99	370.29	370.49
2....	370.29	371.99	372.99	372.69	373.89	372.09	370.79	370.49	370.09	369.99	370.29	370.49
3....	370.29	371.99	372.89	372.79	373.99	372.09	370.69	370.39	370.19	369.99	370.29	370.49
4....	370.29	371.99	372.89	372.79	373.89	372.09	370.69	370.39	370.29	369.99	370.29	370.49
5....	370.29	371.99	372.79	372.89	373.79	372.09	370.59	370.39	370.59	369.99	370.29	370.49
6....	370.39	371.89	372.69	373.09	373.89	372.09	370.69	370.39	370.29	370.09	370.29	370.49
7....	370.49	371.89	372.59	372.89	373.89	372.19	370.59	370.29	370.19	370.09	370.29	370.59
8....	370.59	371.79	372.49	373.29	373.89	372.19	370.59	370.29	370.19	370.09	370.29	370.59
9....	370.69	371.79	372.39	373.39	373.79	372.19	370.59	370.19	370.19	370.09	370.29	370.49
10....	370.69	371.79	372.39	373.39	373.79	372.09	370.59	370.29	370.19	370.09	370.29	370.49
11....	370.69	371.89	372.39	373.49	373.79	371.99	370.49	370.29	370.19	370.09	370.29	370.49
12....	370.79	371.89	372.29	373.49	373.69	371.99	370.39	370.29	370.19	370.09	370.29	370.49
13....	370.99	371.89	372.29	373.49	373.69	371.89	370.39	370.29	370.19	370.09	370.29	370.79
14....	370.99	371.89	372.29	373.59	373.69	371.79	370.29	370.29	370.19	370.09	370.29	370.49
15....	371.09	371.89	372.19	373.29	373.59	371.69	370.29	370.49	370.29	370.09	370.29	370.49
16....	371.09	371.89	372.19	373.79	373.59	371.69	370.29	370.39	370.19	369.99	370.29	370.49
17....	371.09	371.89	372.19	374.19	373.59	371.59	370.19	370.39	370.19	369.99	370.29	370.49
18....	371.09	371.99	372.09	374.29	373.49	371.49	370.09	370.29	370.19	369.99	370.29	370.49
19....	371.09	371.99	371.99	374.29	373.49	371.19	370.19	370.29	370.29	370.09	370.29	370.39
20....	371.19	372.09	372.09	374.29	373.39	371.29	370.29	370.29	370.29	370.09	370.29	370.49
21....	371.19	372.29	371.89	374.49	373.29	371.29	370.29	370.29	370.19	370.19	370.19	370.49
22....	371.19	372.29	371.79	374.39	373.19	371.29	370.29	370.29	370.19	370.09	370.29	370.49
23....	371.19	372.59	371.79	374.09	373.09	371.19	370.39	370.29	370.19	370.09	370.29	370.49
24....	371.49	372.79	371.69	373.99	372.99	371.09	370.49	370.29	370.19	370.09	370.29	370.49
25....	371.39	372.89	371.69	373.99	372.79	371.09	370.49	370.29	370.09	370.19	370.39	370.49
26....	371.49	373.09	371.79	373.89	372.69	371.09	370.49	370.29	370.09	370.19	370.39	370.49
27....	371.69	373.09	371.79	373.79	372.49	371.09	370.49	370.19	370.09	370.19	370.49	370.49
28....	371.79	373.09	371.99	373.79	372.49	370.99	370.49	370.19	370.09	370.19	370.49	370.49
29....	371.89	.....	372.49	373.99	372.39	370.89	370.59	370.09	370.09	370.19	370.49	370.49
30....	371.89	.....	372.49	373.79	372.29	370.89	370.49	370.19	370.09	370.19	370.49	370.49
31....	371.99	.....	372.59	.....	372.19	.....	370.59	370.29	.....	370.19	.....	370.49

* Incorrectly published as 372.36, instead of 373.36, in Report of State Engineer and Surveyor for 1910, page 368.

NOTE.— Supersedes table published in Report of State Engineer and Surveyor for 1910, page 368.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1910	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1...	370.49	371.29	371.79	373.09	371.59	371.29	370.69	370.29	370.29	370.29	370.19	371.19
2...	370.49	371.29	372.14	373.09	371.59	371.29	370.69	370.29	370.29	370.29	370.29	371.19
3...	370.49	371.29	372.64	373.09	371.49	371.29	370.69	370.29	370.29	370.29	370.29	371.19
4...	370.49	371.29	372.89	373.19	371.39	371.19	370.69	370.09	370.29	370.29	370.29	371.19
5...	370.49	371.29	373.09	372.99	371.39	371.19	370.59	370.29	370.29	370.29	*370.39	371.19
6...	370.49	371.29	373.29	372.89	371.29	371.29	370.59	370.29	370.29	370.29	370.39	371.19
7...	370.49	371.29	373.49	372.79	371.19	371.29	370.49	370.29	370.29	370.29	370.39	371.19
8...	370.49	371.29	373.69	373.79	371.19	371.29	370.39	370.29	370.29	370.29	370.39	371.19
9...	370.49	371.29	373.89	372.69	371.19	371.39	370.39	370.29	370.29	370.29	370.39	371.19
10...	370.49	371.29	373.89	372.59	371.19	371.39	370.29	370.29	370.29	370.29	370.49	371.09
11...	370.49	371.19	373.89	372.50	371.19	371.39	370.29	370.29	370.29	370.29	370.49	371.09
12...	370.49	371.19	373.89	372.49	371.19	371.29	370.29	370.29	370.29	370.29	370.49	371.09
13...	370.49	371.19	373.79	372.39	371.19	371.19	370.29	370.29	370.29	370.29	370.59	371.09
14...	370.49	371.19	373.69	372.39	371.09	371.19	370.29	370.29	370.29	370.29	370.59	371.09
15...	370.49	371.19	373.69	372.29	371.09	371.19	370.29	370.29	370.29	370.29	370.59	371.09
16...	370.49	371.09	373.39	372.19	371.09	371.19	370.29	370.29	370.29	370.29	370.79	371.09
17...	370.49	371.09	373.39	372.19	370.99	371.19	370.29	370.29	370.29	370.29	370.79	371.09
18...	370.49	371.09	373.19	372.09	370.99	371.19	370.29	370.29	370.29	370.29	370.89	371.09
19...	370.59	371.09	373.09	371.99	370.99	371.09	370.29	370.29	370.29	370.29	370.89	371.09
20...	370.59	371.09	373.09	371.89	371.09	370.99	370.29	370.29	370.29	370.29	370.99	371.09
21...	370.59	371.09	373.09	371.79	371.09	370.99	370.29	370.29	370.29	370.29	371.09	371.09
22...	370.59	371.09	372.89	371.79	371.09	370.89	370.29	370.29	370.29	370.29	371.09	370.99
23...	370.79	371.09	372.89	371.79	371.09	370.89	370.29	370.29	370.29	370.19	371.09	370.99
24...	370.79	371.09	372.89	371.79	371.19	370.89	370.29	370.29	370.29	370.29	371.19	370.99
25...	370.99	371.09	372.89	371.79	371.19	370.79	370.29	370.29	370.29	370.19	371.09	370.99
26...	371.29	371.09	372.99	371.79	371.19	370.79	370.29	370.09	370.29	370.19	371.09	370.99
27...	371.29	371.29	373.09	371.69	371.29	370.79	370.29	370.29	370.29	370.19	371.29	370.99
28...	371.29	371.59	373.09	371.69	371.29	370.79	370.29	370.29	370.29	370.19	371.29	370.99
29...	371.29	371.59	373.09	371.69	371.29	370.79	370.29	370.29	370.29	370.19	371.29	370.99
30...	371.29	371.59	373.09	371.59	370.29	370.79	370.29	370.29	370.29	370.19	371.29	370.99
31...	371.29	373.09	373.09	371.29	371.29	370.29	370.29	370.29	370.29	370.19	371.29	370.99

* Incorrectly published as 370.06, instead of 370.16, in Report of State Engineer and Surveyor for 1910, page 368.

Note.—Supersedes table published in Report of the State Engineer and Surveyor for 1910, page 368.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1911	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1...	370.89	371.39	371.09	372.59	372.99	370.99	370.79	370.29	370.19	370.29	370.79	372.29
2...	370.89	371.49	371.09	372.69	372.99	370.99	370.69	370.29	370.19	370.29	370.79	372.29
3...	370.89	371.49	371.09	372.79	372.89	370.99	370.69	370.29	370.19	370.29	370.79	372.29
4...	370.89	371.49	371.09	372.89	372.79	370.89	370.69	370.29	370.19	370.29	370.79	372.29
5...	370.89	371.49	371.09	372.99	372.69	370.89	370.69	370.29	370.19	370.29	370.79	372.29
6...	370.89	371.49	371.09	373.19	372.59	370.79	370.69	370.29	370.19	370.29	370.79	372.29
7...	370.89	371.49	371.09	373.29	372.59	370.79	370.59	370.29	370.19	370.29	370.89	372.29
8...	370.89	371.59	371.09	373.39	372.49	370.89	370.59	370.29	370.19	370.29	370.89	372.29
9...	370.89	371.59	370.99	373.49	372.49	370.79	370.59	370.19	370.29	370.29	370.89	372.29
10...	370.89	371.59	370.99	373.69	372.39	370.79	370.59	370.29	370.19	370.29	370.89	372.29
11...	370.89	371.59	370.99	373.99	372.39	370.79	370.59	370.19	370.29	370.29	370.89	372.29
12...	370.89	371.59	370.99	374.09	372.29	370.79	370.59	370.19	370.29	370.29	371.09	372.29
13...	370.89	371.59	370.99	374.09	372.19	370.79	370.59	370.29	370.19	370.29	371.09	372.29
14...	370.89	371.59	370.99	374.19	372.09	370.79	370.59	370.29	370.19	370.29	371.19	372.29
15...	370.89	371.59	371.19	374.19	372.09	370.79	370.59	370.19	370.29	370.29	371.29	372.29
16...	370.89	371.59	371.19	374.19	371.99	370.79	370.59	370.29	370.29	370.29	371.29	372.29
17...	370.89	371.59	371.19	374.19	371.89	370.79	370.49	370.19	370.29	370.29	371.39	372.29
18...	370.89	371.59	371.19	374.19	371.89	370.79	370.49	370.19	370.29	370.29	371.49	372.29
19...	370.89	371.59	371.19	374.09	371.79	370.79	370.49	370.19	370.29	370.29	371.49	372.29
20...	370.89	371.59	371.29	373.99	371.79	370.79	370.49	370.19	370.29	370.29	371.59	372.29

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON —
Continued

1911	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21....	370.89	371.19	371.29	373.89	371.69	370.79	370.49	370.19	370.19	370.39	371.69	372.49
22....	370.89	371.19	371.29	373.89	371.59	370.79	370.49	370.19	370.19	370.39	371.79	372.49
23....	370.89	371.19	371.29	373.69	371.59	370.79	370.49	370.19	370.19	370.39	371.79	372.49
24....	370.89	371.09	371.39	373.69	371.59	370.79	370.39	370.19	370.19	370.39	371.79	372.49
25....	370.89	371.09	371.49	373.59	371.49	370.79	370.39	370.19	370.29	370.49	371.89	372.39
26....	370.89	371.09	371.59	373.49	371.39	370.79	370.39	370.19	370.19	370.49	371.99	372.39
27....	370.89	371.09	371.89	373.29	371.29	370.79	370.39	370.19	370.19	370.59	371.99	372.29
28....	370.89	371.09	372.29	373.19	371.19	370.79	370.39	370.19	370.19	370.59	372.09	372.29
29....	371.09	.....	372.39	373.09	371.09	370.79	370.39	370.19	370.19	370.69	372.19	372.29
30....	371.29	.....	372.39	373.09	371.09	370.79	370.39	370.19	370.19	370.69	372.19	372.29
31....	371.29	.....	372.89	.....	371.09	.....	370.39	370.19	.....	370.69	.....	372.19

^a Incorrectly published as 369.26, instead of 370.26; ^b Incorrectly published as 360.16, instead of 371.16, in Report of State Engineer and Surveyor for 1911, Vol. II, p. 66.

NOTE.—Supersedes table published in Report of the State Engineer and Surveyor for 1911, Vol. II, p. 66.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1912	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1....	372.19	371.19	370.99	373.39	374.09	^a	370.79	370.19	370.29	371.09	371.19	371.39
2....	372.19	371.09	370.99	373.59	374.09	^a	370.79	370.19	370.29	371.09	371.19	371.49
3....	372.09	371.09	370.99	374.09	373.89	^a	370.79	370.19	370.29	371.09	371.19	371.49
4....	372.09	371.09	370.99	374.19	373.79	372.39	370.79	370.19	370.29	371.09	371.19	371.59
5....	371.99	371.09	370.99	374.39	373.69	372.29	370.69	370.19	370.29	371.09	371.19	371.69
6....	371.99	370.99	370.99	374.39	373.49	372.19	370.69	370.19	370.29	371.09	371.19	371.69
7....	371.89	370.99	370.99	374.59	373.39	372.09	370.69	370.19	370.29	371.09	371.19	371.69
8....	371.79	370.99	370.99	374.99	373.29	372.09	370.69	370.19	370.29	371.09	371.19	371.69
9....	371.79	370.99	370.99	375.19	373.19	371.99	370.69	370.19	370.29	371.09	371.19	371.69
10....	371.79	370.99	370.99	375.29	373.09	371.99	370.59	370.19	370.29	371.19	371.19	371.99
11....	371.69	370.99	371.09	375.29	372.89	371.79	370.59	370.29	370.29	371.19	371.19	371.99
12....	371.69	370.99	371.19	375.29	372.29	371.79	370.49	370.29	370.29	371.09	371.19	371.89
13....	371.69	370.99	371.29	375.19	372.69	371.59	370.49	370.29	370.29	371.09	371.29	371.79
14....	371.69	370.99	371.39	375.09	372.69	371.59	370.39	370.29	370.29	370.99	371.29	371.79
15....	371.59	370.99	371.49	375.09	372.59	371.49	370.29	370.29	370.39	370.99	371.29	371.79
16....	371.59	370.99	371.49	375.09	372.59	371.39	370.29	370.29	370.49	370.99	371.29	371.79
17....	371.59	370.99	371.39	375.19	372.59	371.29	370.29	370.29	370.49	370.89	371.29	371.79
18....	371.59	370.99	371.29	375.19	372.59	371.19	370.29	370.29	370.49	370.89	371.29	371.69
19....	371.49	370.99	371.29	375.09	372.59	371.19	370.29	370.29	370.59	370.89	371.29	371.69
20....	371.49	370.99	371.29	375.09	372.49	371.19	370.29	370.29	370.59	370.89	371.29	371.69
21....	371.49	370.99	371.29	375.09	372.59	371.19	370.29	370.19	370.59	370.89	371.29	371.69
22....	371.49	370.99	371.39	374.99	372.59	371.09	370.29	370.19	370.59	370.89	371.29	371.69
23....	371.39	370.99	371.49	374.99	372.59	371.09	370.29	370.19	370.59	370.89	371.29	371.69
24....	371.39	370.99	371.59	374.99	372.59	371.09	370.29	370.19	370.59	370.89	371.29	371.69
25....	371.39	370.99	371.79	374.89	372.69	371.09	370.29	370.19	370.79	370.89	371.39	*371.69
26....	371.39	370.99	371.89	374.89	372.79	371.09	370.29	370.29	370.99	370.89	371.39	371.69
27....	371.39	370.99	372.19	374.49	372.79	371.09	370.19	370.29	370.99	370.89	371.49	371.59
28....	371.29	370.99	372.29	374.39	372.79	370.99	370.19	370.29	370.99	370.89	371.49	371.49
29....	371.29	370.99	372.49	374.29	372.79	370.89	370.19	370.29	371.09	370.99	371.49	371.49
30....	371.29	.....	372.29	374.09	372.79	370.89	370.19	370.29	371.09	371.09	371.49	371.49
31....	371.19	.....	373.29	.....	372.79	.....	370.19	370.29	.....	371.09	.....	371.49

^a No record. * Incorrectly published as 373.46, instead of 371.46, in Report of State Engineer and Surveyor for 1912, Vol. II, page 62.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1912, Vol. II, page 62.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1913	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371.49	373.29	371.49	374.89	372.19	371.09	370.59	370.09	369.59	369.79	370.69	370.89
2	371.49	373.09	371.49	374.89	372.09	371.09	370.59	370.09	369.59	369.79	370.69	370.89
3	371.49	372.89	371.49	374.79	371.09	371.09	370.59	369.99	369.59	369.79	370.69	370.89
4	371.49	372.79	371.49	374.69	371.09	371.19	370.49	369.99	369.59	369.79	370.69	370.89
5	371.59	372.79	371.49	374.59	371.89	371.19	370.49	369.99	369.59	369.79	370.69	370.89
6	371.79	372.69	371.49	374.59	371.79	371.19	370.49	369.99	369.59	369.79	370.69	370.89
7	371.89	372.49	371.49	374.49	371.69	371.19	370.49	369.99	369.59	369.79	370.69	370.89
8	372.09	372.39	371.39	374.49	371.59	371.09	370.39	369.99	369.59	369.79	370.69	370.89
9	372.29	372.39	371.29	374.39	371.49	371.09	370.39	369.99	369.59	369.79	370.69	370.89
10	372.49	372.29	371.29	374.39	371.39	370.99	370.39	369.89	369.59	369.79	370.69	370.99
11	372.69	372.29	371.29	374.29	371.39	370.89	370.29	369.89	369.59	369.79	370.69	370.99
12	372.89	372.19	371.39	374.19	371.29	370.79	370.29	369.89	369.59	369.79	370.69	370.99
13	373.09	372.09	371.59	374.09	371.29	370.79	370.29	369.89	369.59	369.89	370.79	370.99
14	373.09	371.99	371.89	373.99	371.29	370.79	370.29	369.89	369.59	369.89	370.79	370.99
15	373.09	371.99	372.19	373.79	371.29	370.79	370.29	369.89	369.59	369.89	370.79	370.99
16	373.19	371.99	372.49	373.59	371.19	370.79	370.29	369.89	369.59	369.89	370.79	370.89
17	373.19	371.89	372.09	373.39	371.19	370.79	370.29	369.89	369.59	369.89	370.79	370.89
18	373.29	371.79	372.89	373.29	371.19	370.79	370.29	369.89	369.59	369.99	370.89	370.89
19	373.59	371.69	372.99	373.09	371.19	370.79	370.29	369.79	369.59	369.99	370.89	370.89
20	373.79	371.69	372.99	373.09	371.19	370.79	370.19	369.79	369.59	369.99	370.89	370.89
21	373.89	371.69	373.09	372.99	371.19	370.69	370.19	369.79	369.69	370.09	*370.99	370.89
22	373.89	371.59	373.19	372.89	371.19	370.69	370.19	369.69	369.59	370.09	370.99	370.89
23	373.99	371.59	373.19	372.79	371.09	370.69	370.19	369.69	369.69	370.19	370.89	370.89
24	373.99	371.59	373.19	372.79	371.09	370.59	370.09	369.69	369.79	370.29	370.89	370.89
25	373.89	371.59	373.29	372.69	371.09	370.59	370.09	369.69	369.79	370.39	370.89	370.89
26	373.89	371.59	373.89	372.59	371.09	370.59	370.09	369.69	369.79	370.39	370.89	370.89
27	373.79	371.59	374.29	372.59	371.09	370.59	370.09	369.69	369.79	370.39	370.89	370.89
28	373.69	371.49	374.89	372.49	371.09	370.59	370.09	369.69	369.79	370.49	370.89	370.89
29	373.69	.....	375.29	372.39	371.09	370.59	370.09	369.69	369.79	370.49	370.89	370.89
30	373.79	.....	375.09	372.29	371.09	370.59	370.09	369.69	369.79	370.49	370.89	370.89
31	373.79	.....	374.89	.....	371.09	.....	370.09	369.69	.....	370.59	.....	370.89

* November 21 to 30, inclusive, last figure incorrectly published as 0, instead of 6, in Report of State Engineer and Surveyor for 1913, Vol. II, p. 70.

Note.—Supersedes table published in Report of State Engineer and Surveyor for 1913, Vol. II, p. 70.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1914	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	370.79	370.79	370.79	373.69	373.39	371.39	370.69	370.29	370.69	370.39	369.89	370.09
2	370.79	370.79	370.79	373.89	373.29	371.29	370.69	370.29	370.69	370.39	369.89	370.19
3	370.79	370.79	370.69	374.09	373.19	371.29	370.69	370.19	370.69	370.39	369.89	370.29
4	370.69	370.89	370.69	374.19	373.09	371.29	370.69	370.19	370.69	370.29	369.89	370.29
5	370.69	370.89	370.69	374.09	372.99	371.19	370.69	370.19	370.69	370.29	369.89	370.29
6	370.69	370.99	370.69	374.09	372.99	371.19	370.69	370.09	370.79	370.29	369.89	370.39
7	370.69	370.99	370.69	373.99	372.89	371.29	370.59	370.09	370.79	370.19	369.79	370.49
8	370.69	370.99	370.59	373.89	372.79	371.29	370.59	370.09	370.79	370.19	369.79	370.59
9	370.69	371.09	370.59	373.99	372.79	371.29	370.59	370.09	370.89	370.19	369.79	370.59
10	370.69	371.09	370.59	374.09	372.69	371.19	370.59	370.09	370.89	370.19	369.69	370.59
11	370.59	371.19	370.59	374.19	372.59	371.29	370.59	370.09	370.89	370.19	369.69	370.59
12	370.59	371.19	370.59	374.09	372.59	371.29	370.59	370.09	370.79	370.09	369.69	370.49
13	370.59	371.09	370.59	373.99	372.59	371.29	370.59	370.09	370.79	370.09	369.69	370.49
14	370.59	371.09	370.59	373.99	372.59	371.19	370.59	370.09	370.79	370.09	369.69	370.39
15	370.59	370.99	370.59	373.89	372.49	371.19	370.49	370.09	370.79	370.09	369.69	370.39
16	370.59	370.99	370.59	373.89	372.49	371.09	370.49	370.09	370.69	370.09	369.69	370.39
17	370.59	370.89	370.59	373.89	372.39	371.09	370.49	370.09	370.69	370.09	369.79	370.39
18	370.59	370.89	370.59	373.89	372.29	371.09	370.49	370.09	370.69	370.09	369.79	370.39
19	370.59	370.89	370.59	373.89	372.19	370.99	370.49	370.09	370.69	370.09	369.79	370.39
20	370.59	370.79	370.59	373.89	372.09	370.99	370.49	370.09	370.59	370.09	369.79	370.39

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON —
Continued

1914	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21.....	370.50	370.79	370.69	373.89	371.99	370.99	370.49	370.00	370.50	370.09	369.79	370.39
22.....	370.59	370.79	370.69	373.79	371.99	370.99	370.49	370.09	370.59	370.09	369.89	370.39
23.....	370.59	370.79	370.79	373.79	371.89	370.89	370.49	370.19	370.59	370.09	369.89	370.39
24.....	370.59	370.79	370.79	373.69	371.89	370.89	370.49	370.19	370.49	370.09	369.89	370.39
25.....	370.49	370.79	370.79	373.69	371.79	370.79	370.49	370.29	370.49	370.09	369.89	370.39
26.....	370.49	370.79	370.99	373.69	371.79	370.79	370.49	370.29	370.49	370.09	369.89	370.39
27.....	370.49	370.79	371.29	373.59	371.69	370.69	370.49	370.39	370.49	369.99	369.89	370.39
28.....	370.49	370.79	371.89	373.59	371.59	370.69	370.39	370.39	370.49	369.99	369.99	370.39
29.....	370.49	.....	372.29	373.49	371.59	370.69	370.39	370.39	370.49	369.89	369.99	370.39
30.....	370.49	.....	372.89	373.49	371.49	370.69	370.39	370.59	370.39	369.89	369.99	370.39
31.....	370.49	.....	373.39	.....	371.39	.....	370.29	370.69	.....	369.89	.....	370.39

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1915	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	370.39	371.19	372.49	370.94	^b 371.44	370.67	370.51	370.69	370.64	371.0	371.2	371.4
2.....	370.39	371.19	372.49	370.94	371.39	370.64	370.69	370.64	370.59	371.0	371.2	371.4
3.....	370.39	371.09	372.39	370.99	371.39	370.59	370.74	370.74	370.59	371.1	371.2	371.35
4.....	370.39	371.09	372.29	370.94	371.29	370.64	370.74	370.94	370.64	371.2	371.2	371.35
5.....	370.39	371.09	372.29	370.94	371.24	370.54	370.69	370.79	370.59	371.3	371.15	371.3
6.....	370.49	370.99	372.19	370.94	371.19	370.49	370.69	370.74	370.59	371.4	371.2	371.3
7.....	370.49	370.99	372.09	370.91	371.14	370.49	370.74	370.79	370.54	371.45	371.15	371.25
8.....	370.49	371.09	371.89	371.11	371.09	370.49	370.74	370.74	370.59	371.4	371.1	371.2
9.....	370.59	371.09	371.79	371.21	371.09	370.54	370.84	370.69	370.54	371.4	371.1	371.2
10.....	370.69	371.09	371.69	371.31	371.14	370.54	370.97	370.74	370.54	371.45	371.05	371.15
11.....	370.79	371.19	371.69	371.39	371.09	370.49	370.99	370.79	370.59	371.5	371.0	371.1
12.....	370.89	371.19	371.59	371.51	371.09	370.54	371.09	370.79	370.64	371.5	371.0	371.1
13.....	370.89	371.19	371.59	371.71	371.14	370.49	370.99	370.74	370.79	371.45	371.0	371.1
14.....	370.89	371.19	371.49	371.79	371.09	370.49	371.04	370.79	370.74	371.4	371.05	371.05
15.....	370.99	371.19	371.39	371.81	371.04	370.54	370.99	370.79	370.84	371.3	371.0	371.0
16.....	370.99	371.29	371.23	371.79	370.99	370.49	370.99	370.79	370.89	371.3	371.0	371.05
17.....	371.03	371.29	371.29	371.79	370.94	370.44	371.04	370.74	370.89	371.4	371.05	371.1
18.....	371.09	371.39	371.19	371.79	370.94	370.49	370.99	370.74	370.94	371.45	371.1	371.1
19.....	371.29	371.39	371.09	371.81	370.94	370.44	370.99	370.69	370.99	371.5	371.75	371.2
20.....	371.49	371.49	371.04	371.79	370.94	370.39	370.99	370.69	370.99	371.5	371.2	371.3
21.....	371.79	371.59	370.99	371.79	370.89	370.39	370.94	370.69	370.94	371.5	371.4	371.55
22.....	371.79	371.59	370.99	371.69	370.84	370.44	370.94	370.69	370.94	371.45	371.5	371.42
23.....	371.89	371.79	370.94	371.69	370.79	370.44	370.89	370.69	370.89	371.45	371.5	371.52
24.....	371.89	371.99	370.99	371.59	370.79	370.39	370.89	370.74	370.89	371.5	371.6	371.62
25.....	371.79	372.09	370.99	371.59	370.79	370.44	370.99	370.74	370.94	371.45	371.5	371.7
26.....	371.79	372.29	370.99	371.59	370.74	370.44	370.84	370.69	370.89	371.4	371.55	371.7
27.....	371.69	372.39	370.99	371.64	370.74	370.39	370.79	370.69	370.89	371.4	371.5	371.75
28.....	371.69	372.39	370.99	371.64	370.69	370.39	370.74	370.74	370.94	371.35	371.5	371.8
29.....	371.49	.....	370.94	371.59	370.69	370.39	370.69	370.69	370.94	371.35	371.4	371.87
30.....	371.29	.....	370.89	371.54	370.69	370.39	370.69	370.69	370.99	371.3	371.4	371.97
31.....	371.29	.....	370.89	.....	370.69	.....	370.64	370.69	.....	371.25	.....	372.1

^a Incorrectly published as 272.19, instead of 372.19; ^b Incorrectly published as 370.44, instead of 371.44, in Report of State Engineer and Surveyor for 1915, Vol. II, page 125.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON

1916	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	372.15	372.7	371.4	372.42	372.6	372.08	371.4	370.52	370.1	370.3	369.85	370.8
2.....	372.25	372.8	371.4	373.07	372.5	371.8	371.3	370.5	370.1	370.3	370.0	370.6
3.....	372.3	372.7	371.4	373.5	372.5	371.9	371.3	370.5	370.1	370.32	369.95	370.8
4.....	372.4	372.6	371.3	373.92	372.4	371.9	371.2	370.45	370.06	370.35	370.05	370.9
5.....	372.5	372.5	371.3	373.95	372.3	371.9	371.2	370.4	370.05	370.35	370.05	370.9
6.....	372.6	372.5	371.2	373.9	372.2	371.9	371.2	370.4	370.05	370.25	370.05	370.4
7.....	372.7	372.4	371.2	373.85	372.1	371.9	371.2	370.4	370.05	370.3	370.2	371.15
8.....	372.8	372.8	371.1	373.8	372.1	371.9	371.1	370.35	370.0	370.3	370.2	371.3
9.....	372.8	372.3	371.1	373.7	372.0	371.8	371.1	370.35	370.05	370.2	370.05	371.5
10.....	372.75	372.2	371.1	373.6	372.0	371.8	371.0	370.32	370.05	370.2	370.05	371.05
11.....	372.7	372.1	371.1	373.5	371.9	371.7	371.0	370.32	370.05	370.3	369.8	371.25
12.....	372.65	372.0	371.0	373.4	371.9	371.5	371.0	370.3	370.0	370.05	370.2	371.2
13.....	372.6	371.0	371.0	373.3	371.8	371.5	371.0	370.18	370.0	369.95	370.05	371.2
14.....	372.6	371.8	371.0	373.4	371.8	371.5	371.1	370.2	370.0	370.0	370.0	371.2
15.....	372.5	371.7	370.9	373.3	371.7	371.5	371.1	370.25	370.05	370.05	370.3	371.0
16.....	372.5	371.7	370.8	373.3	371.7	371.9	371.1	370.25	370.6	370.0	370.1	371.1
17.....	372.4	371.6	370.7	373.25	371.85	371.55	371.1	370.3	370.05	369.3	370.2	371.2
18.....	372.4	371.5	370.6	373.2	372.5	371.65	371.05	370.3	370.05	370.05	370.1	371.1
19.....	372.3	371.4	370.6	373.1	372.82	371.8	371.05	370.25	370.0	370.75	370.1	371.0
20.....	372.3	371.3	370.6	373.1	372.9	371.85	371.1	370.25	370.0	369.9	370.05	370.9
21.....	372.2	371.3	370.5	373.1	372.9	371.9	371.05	370.2	370.05	370.0	370.05	370.9
22.....	372.2	371.3	370.5	373.1	372.85	371.8	371.0	370.3	370.05	370.02	370.1	370.95
23.....	372.1	371.4	370.5	373.0	372.9	371.8	370.8	370.2	370.05	371.0	370.3	370.95
24.....	372.2	371.4	370.5	373.0	372.9	371.75	370.8	370.1	369.92	370.0	370.1	370.95
25.....	372.2	371.3	370.6	373.0	372.8	371.7	370.8	370.1	370.05	370.5	370.0	370.9
26.....	372.3	371.7	370.6	372.9	372.75	371.7	370.75	370.0	370.05	369.8	370.1	370.95
27.....	372.4	371.4	370.6	372.87	372.6	371.62	370.7	370.2	370.1	370.05	370.3	371.0
28.....	372.5	371.3	370.6	372.8	372.5	371.6	370.7	370.0	370.15	370.0	370.3	370.9
29.....	372.6	371.3	370.7	372.72	372.35	371.5	370.66	370.1	370.25	370.3	370.35	370.9
30.....	372.0	.....	371.05	372.7	372.2	371.4	370.6	370.1	370.18	370.1	370.45	370.9
31.....	372.7	.....	371.75	.....	372.1	.....	370.55	370.1	.....	369.9	.....	370.9

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON
for the year ended June 30, 1917. A. R. Merritt, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	371.4	370.52	370.1	370.3	369.85	370.8	370.9	370.8	370.35	373.35	372.3	371.5
2.....	371.3	370.5	370.1	370.3	370.0	370.6	370.85	370.8	370.4	373.42	372.2	371.55
3.....	371.3	370.5	370.1	370.32	369.95	370.8	370.8	370.75	370.3	373.5	372.05	371.5
4.....	371.2	370.45	370.05	370.35	370.05	370.9	370.85	370.7	370.35	373.75	372.1	371.45
5.....	371.2	370.4	370.05	370.35	370.05	370.9	370.9	370.65	370.3	374.0	372.2	371.4
6.....	371.2	370.4	370.05	370.25	370.05	370.4	370.9	370.6	370.4	374.2	372.0	371.3
7.....	371.2	370.4	370.05	370.3	370.2	371.15	370.05	370.55	370.5	373.65	372.0	371.4
8.....	371.1	370.35	370.0	370.3	370.2	371.3	371.0	370.5	370.8	373.8	372.0	371.35
9.....	371.1	370.35	370.05	370.2	370.05	371.5	371.0	370.5	370.45	373.7	371.9	371.45
10.....	371.0	370.32	370.05	370.2	370.05	371.05	371.1	370.45	370.4	373.6	371.8	371.45
11.....	371.0	370.32	370.05	370.0	369.8	371.25	371.1	370.4	370.5	373.45	371.65	371.5
12.....	371.0	370.2	370.0	370.05	370.2	371.2	371.15	370.4	370.6	373.35	371.75	371.8
13.....	371.0	370.15	370.0	369.95	370.05	371.2	371.1	370.35	370.8	373.25	371.7	372.0
14.....	371.1	370.2	370.05	370.0	370.0	371.2	371.1	370.3	370.75	373.05	371.6	371.7
15.....	371.1	370.25	370.05	370.05	370.3	371.0	371.1	370.3	370.75	373.0	371.5	371.85
16.....	371.1	370.25	370.6	370.0	370.1	371.1	371.15	370.3	370.75	372.9	371.5	371.8
17.....	371.1	370.3	370.05	369.3	370.1	371.2	371.1	370.35	370.8	372.75	371.45	371.8
18.....	371.05	370.3	370.05	370.05	370.1	371.1	371.1	370.3	370.85	372.65	371.5	371.8
19.....	371.05	370.25	370.0	370.75	370.1	371.0	371.15	370.3	370.9	372.6	371.35	371.7
20.....	371.1	370.25	370.0	369.9	370.05	370.9	371.15	370.3	371.0	372.6	371.35	371.65

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT BREWERTON,
for the year ended June 30, 1917 — *Continued*

DAT	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	371.05	370.2	370.05	370.0	370.05	370.9	371.1	370.3	370.9	372.6	371.3	371.6
22.....	371.0	370.2	370.05	370.02	370.1	370.95	371.15	370.3	370.9	372.6	371.7	371.55
23.....	370.8	370.2	370.05	371.0	370.3	370.95	371.1	370.25	371.0	372.6	371.45	371.5
24.....	370.8	370.1	369.92	371.0	370.1	370.95	371.1	370.2	371.2	372.55	371.05	371.45
25.....	370.8	370.1	370.05	370.5	370.0	370.90	371.5	370.15	371.68	372.5	371.0	371.4
26.....	370.75	370.0	370.05	369.8	370.1	370.95	371.0	370.1	372.05	372.4	371.1	371.4
27.....	370.7	370.0	370.1	370.05	370.3	371.0	371.0	370.2	372.48	372.35	371.3	371.35
28.....	370.7	370.0	370.15	370.0	370.8	370.9	371.0	370.25	372.82	372.35	371.3	371.3
29.....	370.65	370.1	370.25	370.3	370.35	370.9	370.95	.....	373.15	372.3	371.2	371.25
30.....	370.6	370.1	370.18	370.1	370.45	370.9	370.9	.....	372.28	372.25	371.35	371.2
31.....	370.55	370.1	.....	369.9	.....	370.9	370.85	.....	373.38	.....	371.6	.....

ONEIDA RIVER AT CAUGHDENY

Location.—At the Caughdeny dam on the Oneida river about 600 feet above the highway bridge at Caughdeny and about four miles below Oneida lake.

Drainage Area.—1,377 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—Water-surface elevations, April 22, 1904, to June 30, 1917. Discharge, January 1, 1910, to June 30, 1917. Dam completed during summer of 1909.

Gages.—Upper gage: On July 20, 1916, the staff on tree on right bank about 50 feet above dam was superseded by a standard Type A gage, No. 184, and by a slope gage on the bank. The standard gage is secured to the same tree and has a range of 8 feet, between elevations 366.0 and 374.0. The slope gage on the bank a short distance upstream has a range of 5 feet, between elevations 372.0 and 377.0. The gage bench-mark is a nail in last tree in row on north side of highway opposite northeast monument and is at elevation of 389.424 (B. C. datum).

Lower gage: On July 19, 1916, the staff gage on pile below old lock was superseded by a standard Type A gage. This gage, No. 183, is secured to the west end of concrete retaining wall below lower south approach wall to Caughdeny lock, and has a range of 12 feet, between elevations 362.0 and 374.0. A standard bench-mark plug is set in the face of the wall near the gage at elevation 368.0 (B. C. datum).

These gages are read once daily — the upper one to half-tenths, the lower one to tenths.

Discharge computations.— Flow over dam computed, using coefficient derived from U. S. Geological Survey experiments, submergence from U. S. Deep Waterways experiments. Flow through gate and diversion through lock culverts estimated by theoretical calculations.

Control.— Concrete dam with straight ogee type crest 415 feet long at elevation 369.63 and a vertical lift-gate with clear span of 30 feet 9 inches and sill at elevation 362.73.

Extremes of discharge.— Current year: Maximum discharge recorded, April 5, 7,780 second-feet. Minimum discharge recorded, September 29, 25 second-feet.

1910–1917: Maximum discharge recorded, March 30, 1913, 11,100 second-feet. Minimum discharge recorded, January 9, and March 13 and 14, 1914, zero second-feet, water below crest of dam and no reported diversion.

Diversion.— From the southern portion of this drainage basin, principally on Chittenango, Butternut, Oneida and Limestone creeks, there is storage and diversion for the water-supply of the old Erie canal. From the Black and Mohawk river basins there is diversion into this drainage area via the summit levels of the old Erie and new Barge canal.

Regulation.— By storage indicated under diversion and by Oneida lake surface of 78 square miles.

Accuracy.— Estimated flow within ten per cent. There are occasional short periods, which can not now be definitely determined, for which the estimated discharge previously published is too large, due to the use of a water-surface elevation incorrectly reported one foot too high.

Revision of Tables.— Errors having been found in the benchmarks, as noted in the Report of the State Engineer and Surveyor for 1908, page 479, and in the Report for 1915, Vol. II, page 127, it has been considered advisable to revise such tables as are affected and republish all the tables of water-surface elevations from 1904 to 1916, inclusive. These tables are published in the following pages.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT CAUGHDENOT

1904	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1					373.13	371.33	369.93	369.53	369.73	369.43	370.33	
2					373.03	371.23	369.73	369.43	369.53		370.43	
3					373.03	371.03		369.33	369.53	369.63	370.33	
4					372.93	370.93	369.93	369.43		369.83	370.23	
5					372.83		369.83	369.43	369.53	369.83	370.83	
6					372.83	370.73	369.93	369.43	369.53	369.83		
7					372.73	370.73	369.83		369.53	369.83	370.23	
8						370.83	369.83	369.33	369.53	369.83	370.23	
9					372.63	370.73	369.93	369.33	369.63		370.23	
10					372.43	370.73		369.43	369.53	369.93	370.13	
11					372.33	370.63	369.73	369.23		369.83	370.13	
12					372.23		369.73	369.23	369.43	370.13	370.13	
13					372.13	370.73	369.53	369.23	369.43	370.23		
14					372.13	370.63	369.73		369.43	370.13	369.83	
15						370.53	369.73	369.13	369.13	370.03	369.93	
16					371.83	370.33	369.73	369.23	369.33		369.93	
17					371.93	370.43		369.13	369.33	370.13	369.93	
18					371.93	370.43	369.63	369.93		370.13	370.03	
19					371.83		369.73	369.03	369.33	370.13	369.93	
20					371.73	370.43	369.63	369.33	369.43	370.33		
21					371.63	370.33	369.63		369.33	369.93	369.83	
22				373.33		370.13	369.63	369.53	369.33	370.03	370.03	
23				373.23	371.53	370.23	369.73	369.63	369.33		369.93	
24				373.13	371.53	370.23		369.83	369.33	370.23	370.03	
25				373.03	371.43	370.23	369.63	369.83		370.33	369.73	
26				373.03	371.43		369.63	369.53	369.43	370.33	369.93	
27				373.13	370.93	369.93	369.53	369.73	369.43	370.33		
28				373.03	371.33	370.13	369.53		369.53	370.33	369.83	
29				373.13		370.13	369.53	369.63	369.63	370.33	370.13	
30				373.13	371.23	370.03	369.63	369.73	369.63		369.83	
31					371.13			369.53		370.33		

No record on dates left blank.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1903, p. 483

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT CAUGHDENOT

1905	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				373.33	372.13	370.43	370.93	370.23	370.13		370.73	370.83
2				373.43	372.03	370.43		370.23	370.03	370.33	370.63	370.73
3				373.53	372.03	370.33	370.83	370.23		370.13	371.03	
4				373.53	371.93		370.93	370.33	370.43	370.13	370.73	370.83
5				373.63	371.93	370.43	370.93	370.23	370.43	370.13		
6				373.63	371.83	370.33	370.83		370.53	370.23	371.13	371.23
7				373.83	371.63	370.63	370.83	370.13	370.63	370.13	370.93	371.33
8				373.83	371.73	370.33	370.73	370.23	370.63		370.93	371.33
9				373.73	371.43	370.33		370.33	370.63	370.13	370.83	371.43
10				373.73	371.63	370.43	370.63	370.23		370.23	370.93	
11				373.63	371.63		370.53	370.23	370.63	370.13	370.93	371.23
12				373.53	371.53	370.33	370.63	370.23	370.53	370.03		371.03
13				373.53	371.43	370.33	370.53		370.43	370.23	370.83	371.13
14				373.43	371.43	370.33	370.53	370.23	370.53	370.63	371.03	371.13
15				373.33	371.43	370.43	370.53	370.43	370.63		370.93	371.23

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT CAUGHDENOY — Continued

1905	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16				373.23	371.33	370.33	.....	370.13	370.53	370.63	370.73	371.13
17				373.03	371.23	370.33	370.43	370.23	.....	370.63	370.83	.....
18				372.03	371.23	.....	370.43	370.33	370.53	370.73	370.93	370.93
19				372.03	371.03	370.53	370.43	370.33	370.53	370.63	.....	370.93
20				372.83	371.03	370.73	370.33	.....	370.53	370.83	370.93	370.83
21				372.73	370.93	370.73	370.33	370.23	370.53	370.53	370.83	370.93
22				372.73	370.93	370.83	370.23	370.23	370.53	.....	370.83	370.93
23				372.63	370.93	370.83	.....	370.13	370.43	370.93	370.73	371.13
24			370.13	372.63	370.83	370.93	370.13	370.13	.....	370.83	370.83	.....
25			370.73	372.53	370.73	.....	370.03	370.03	370.43	370.83	370.63	371.23
26			371.23	372.43	370.73	371.03	370.03	370.03	370.43	370.83	.....	371.23
27			371.73	372.33	370.73	370.93	370.03	.....	370.33	370.93	370.63	371.23
28			372.03	372.33	370.63	371.03	370.03	369.93	370.23	370.73	370.73	371.33
29			372.43	372.23	370.63	371.03	370.03	369.93	370.33	.....	370.63	371.23
30			372.73	372.13	370.53	370.93	.....	370.03	370.23	370.73	370.53	371.03
31			373.03	.....	370.53	.....	370.13	370.13	.....	370.73	.....	.....

No record on dates left blank.

NOTE.— Supersedes table published in Report of State Engineer and Surveyor for 1903, page 484.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT CAUGHDENOY

1906	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371.23	371.73	370.93	.....	371.43	370.43	.....	369.63	369.03	368.73	369.43	370.23
2	371.33	371.63	370.93	371.63	371.53	370.33	370.43	369.73	.....	368.73	369.43	.....
3	371.23	371.03	371.03	371.73	371.23	.....	370.33	369.73	368.93	368.73	369.43	370.23
4	371.43	.....	.....	371.63	371.53	370.43	370.23	369.73	368.93	368.73	.....	370.23
5	371.33	371.43	371.13	371.73	371.43	370.33	370.33	.....	368.93	368.83	369.43	370.23
6	371.33	371.43	371.23	371.73	.....	370.33	370.33	369.63	368.83	368.83	369.43	370.33
7	.....	371.33	371.23	371.83	371.43	370.33	370.33	369.63	368.83	.....	369.43	370.33
8	371.33	371.23	371.13	.....	371.33	370.53	.....	369.63	368.83	368.63	369.33	370.33
9	371.23	371.23	371.13	372.03	371.43	370.73	370.23	369.63	.....	368.63	369.53	.....
10	371.23	371.13	371.13	372.13	371.13	.....	370.23	369.73	368.83	368.73	369.43	370.33
11	371.13	.....	.....	371.93	371.23	370.73	370.23	369.53	368.83	368.83	.....	370.33
12	371.13	371.03	371.03	372.03	371.23	370.73	370.33	.....	368.83	368.83	369.53	370.33
13	371.03	370.73	371.03	372.03	.....	370.73	370.33	369.53	368.83	368.83	369.53	370.33
14	.....	370.53	370.93	372.13	371.23	370.63	370.23	369.43	368.73	.....	369.53	370.43
15	371.13	370.83	370.93	.....	371.13	370.63	.....	369.43	368.73	368.83	369.73	370.43
16	371.13	370.83	370.83	372.13	371.13	370.73	370.13	369.33	.....	368.73	369.43	.....
17	371.03	370.73	370.83	372.23	371.13	.....	370.13	369.43	368.63	368.73	369.73	370.53
18	370.93	.....	.....	372.23	371.03	370.73	370.03	369.33	368.63	368.83	.....	370.63
19	370.93	370.73	370.83	372.13	370.93	370.73	370.03	.....	368.63	368.83	369.73	370.63
20	370.93	370.73	370.83	372.13	.....	370.63	370.03	369.23	368.63	368.93	369.73	370.63
21	.....	370.73	370.73	372.23	370.93	370.53	369.93	369.33	368.63	.....	369.83	370.63
22	371.13	370.73	370.63	.....	370.83	370.63	.....	369.43	368.63	369.13	369.83	370.63
23	371.23	370.83	370.63	372.03	370.73	370.43	369.93	369.33	.....	369.13	369.83	.....
24	371.53	370.83	370.63	371.83	370.63	.....	369.83	369.33	368.73	369.13	369.83	370.63
25	371.83	.....	.....	371.83	370.63	370.43	369.83	369.33	368.63	369.13	.....	370.63
26	371.93	370.93	370.63	371.73	370.63	370.43	369.83	.....	368.53	369.13	370.03	370.63
27	371.93	371.03	370.53	371.73	.....	370.33	369.83	369.23	368.63	369.23	370.13	370.63
28	.....	370.93	370.83	371.63	370.63	370.33	369.83	369.13	368.63	.....	370.13	370.53
29	371.93	.....	371.13	.....	370.63	370.33	.....	369.13	368.73	369.13	370.13	370.53
30	371.83	.....	371.53	371.53	370.63	370.13	369.63	369.13	.....	369.13	370.23	.....
31	371.73	.....	371.43	.....	370.53	.....	369.63	369.03	.....	369.33	.....	370.63

NOTE.— Supersedes table published in Report of State Engineer and Surveyor for 1908, page 484.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT CAUGHDENOT

1907	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	370.64	370.94	370.04	372.14	371.34	370.84	370.24	370.04	.....	369.14	370.64	.....
2	370.94	370.94	370.04	372.04	371.44	.....	370.24	370.04	369.14	369.24	370.64	370.94
3	371.14	.....	.....	372.04	371.44	370.54	370.34	369.84	369.14	369.34	.....	371.04
4	371.84	370.84	369.94	372.04	371.54	370.64	370.24	.....	369.14	369.24	370.54	371.24
5	371.84	370.74	369.94	371.84	.....	370.64	370.34	370.04	369.14	369.34	370.84	370.94
6	.....	370.64	369.94	371.84	471.44	370.44	370.34	369.94	369.04	.....	371.04	370.84
7	372.24	370.64	369.94	.....	371.44	370.64	.....	369.94	369.14	369.54	370.84	370.84
8	372.34	370.64	369.94	371.94	371.44	370.74	370.34	369.84	.....	369.34	371.24	.....
9	372.14	370.64	369.94	371.64	371.44	.....	370.14	369.84	369.24	369.84	371.44	370.84
10	372.34	.....	.....	371.44	371.24	370.64	370.24	369.84	369.14	370.04	.....	370.84
11	372.14	370.44	369.84	371.54	371.24	370.74	370.24	.....	369.24	370.14	371.54	370.94
12	372.84	370.34	370.04	371.54	.....	370.74	370.14	369.74	369.24	370.14	371.54	371.04
13	.....	370.44	370.04	371.44	371.34	370.64	370.14	369.64	369.34	.....	371.54	371.14
14	372.04	370.34	370.14	.....	371.24	370.54	.....	369.54	369.34	370.24	371.34	371.54
15	371.84	370.34	370.14	371.34	371.44	370.54	370.24	369.64	.....	370.14	371.54	.....
16	371.84	370.34	370.24	371.34	371.04	.....	370.14	369.64	369.34	370.24	371.44	370.44
17	371.84	.....	.....	371.14	371.14	370.44	370.14	369.54	369.34	370.24	.....	370.64
18	371.74	370.24	370.44	371.14	371.14	370.34	370.14	.....	369.54	369.84	371.34	370.64
19	371.64	370.34	370.64	371.24	.....	370.34	370.14	369.54	369.54	370.14	371.34	370.64
20	.....	370.24	370.54	371.04	370.94	370.34	370.14	369.44	369.24	.....	371.24	370.84
21	371.64	370.14	370.64	.....	370.84	370.34	.....	369.44	369.24	370.04	371.34	370.64
22	371.64	370.14	370.84	371.04	370.84	370.34	370.14	369.44	.....	370.24	371.14	.....
23	371.54	370.04	370.94	371.04	370.84	.....	369.94	369.44	369.44	370.14	371.14	370.94
24	371.44	.....	.....	371.04	370.74	370.34	370.04	369.44	.....	370.14	.....	371.14
25	371.34	369.94	370.94	371.24	370.84	370.24	370.14	.....	368.74	370.14	.....	371.44
26	371.24	370.04	371.44	371.24	.....	370.24	370.04	369.14	369.14	370.04	371.04	.....
27	.....	370.04	371.54	371.34	370.94	369.64	369.84	369.14	369.24	.....	371.14	371.84
28	371.14	370.04	371.74	.....	370.44	.....	.....	369.24	369.24	370.24	370.84	371.94
29	371.04	.....	371.84	371.54	370.74	370.24	369.94	369.24	.....	370.24	371.04	.....
30	371.04	.....	371.94	371.44	370.74	.....	369.94	369.24	369.14	370.44	371.04	372.14
31	371.04	.....	.....	.....	370.74	.....	370.04	369.14	.....	370.64	.....	371.74

a Incorrectly published as 370.1, instead of 370.0; b Incorrectly published as 369.9, instead of 369.7, in Report of State Engineer and Surveyor for 1908, page 485.

Note.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 485.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT CAUGHDENOT

1908	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	372.24	370.94	371.54	372.74	371.94	371.14	370.54	370.14	369.24	a	368.64	369.14
2	372.14	370.84	371.54	372.64	372.34	371.24	370.44	370.04	369.24	a	368.74	368.94
3	372.14	370.84	371.44	372.64	372.14	371.24	370.44	370.14	369.14	a	368.64	369.44
4	372.14	370.64	371.54	372.54	372.44	371.14	370.44	370.04	369.14	368.74	368.14	369.44
5	.....	a	370.74	371.54	372.64	372.44	371.14	370.24	370.04	369.14	368.74	368.64
6	371.84	370.74	371.54	372.54	372.44	371.14	370.24	369.94	369.24	368.84	368.34	369.44
7	371.84	370.74	371.34	372.54	372.74	371.04	370.24	370.04	369.14	368.84	368.64	369.34
8	371.74	370.64	371.44	372.94	372.44	370.94	369.74	369.94	369.04	368.64	368.74	369.24
9	371.84	370.64	371.34	372.44	372.14	370.84	370.14	369.94	369.04	368.54	368.84	369.44
10	371.74	370.64	371.34	372.74	372.14	370.84	370.14	369.84	369.04	368.64	368.84	369.44
11	371.74	370.54	371.34	372.54	372.34	370.74	370.04	369.84	369.24	368.54	368.84	369.54
12	371.74	370.64	371.34	372.54	372.24	370.74	369.94	369.84	369.04	368.64	368.54	369.54
13	371.54	370.54	371.44	372.74	372.14	370.74	369.94	369.74	369.04	368.74	368.84	369.54
14	371.54	370.64	371.44	372.74	372.24	370.74	369.84	369.74	368.94	368.64	368.74	369.54
15	371.54	370.74	371.84	372.64	372.24	370.54	369.84	369.74	369.04	368.64	368.64	369.54

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT
CAUGHDENY — Continued

1908	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	371.44	371.04	372.04	372.64	372.14	370.84	369.84	369.84	368.94	368.64	369.04	369.64
17	371.44	371.34	372.24	372.64	371.84	370.94	369.84	369.64	368.84	368.64	368.64	369.74
18	371.44	371.54	372.24	372.64	372.04	371.04	369.84	369.64	368.84	368.64	369.14	369.84
19	371.44	371.74	372.24	372.54	372.04	370.94	370.04	369.64	368.84	368.54	369.24	369.64
20	371.84	371.74	372.24	372.54	371.94	370.84	370.14	369.54	369.04	368.64	369.04	369.74
21	371.24	371.84	372.24	372.34	371.84	370.84	370.24	369.54	368.84	368.64	369.24	369.94
22	371.04	371.74	372.24	372.44	371.74	370.84	370.24	369.54	368.74	368.74	369.24	369.94
23	371.24	371.74	372.24	372.44	371.64	370.84	370.34	369.44	368.84	368.74	369.24	369.94
24	371.04	371.74	372.14	372.34	371.54	a	370.34	369.44	368.74	368.64	369.24	370.04
25	371.14	371.74	372.24	372.44	371.54	370.74	370.44	369.44	368.74	368.84	369.24	370.04
26	371.14	371.74	372.24	372.24	371.44	370.74	370.44	369.44	368.84	368.84	369.34	370.04
27	370.94	371.64	372.24	372.34	371.34	370.64	370.34	369.34	368.84	368.74	369.24	370.24
28	371.04	371.54	372.44	372.24	371.44	370.64	370.34	369.34	a	368.84	369.24	370.34
29	370.94	371.54	372.54	372.24	371.24	370.54	370.34	369.34	a	368.74	369.34	370.14
30	370.94	a	372.64	372.14	371.34	370.44	370.24	369.24	a	368.74	369.54	370.24
31	370.94	a	372.74	a	371.24	a	370.24	369.24	a	368.54	a	370.04

a No record.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 485.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE LOCK AT
CAUGHDENY

1909	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	370.14	371.14	370.74	369.94	369.64	371.74	370.64	370.24	369.74	369.74	370.24	370.34
2	370.14	371.14	370.64	370.04	369.64	371.64	370.54	370.34	370.14	369.84	370.24	370.44
3	370.24	371.04	370.74	370.04	369.74	371.54	370.54	370.24	370.14	370.04	370.24	370.34
4	370.24	371.04	370.54	369.94	369.74	371.54	370.34	370.34	370.14	370.04	370.14	370.34
5	370.34	370.94	370.44	370.04	369.64	371.74	370.34	370.34	369.94	370.04	370.04	370.34
6	370.44	371.04	370.44	369.94	369.64	371.74	370.44	370.24	370.04	370.04	370.14	370.82
7	370.44	371.04	370.24	370.14	369.74	371.84	370.34	370.24	370.24	370.04	370.34	371.62
8	370.54	371.14	370.14	369.54	369.64	371.84	370.24	370.24	370.14	370.14	370.24	371.02
9	370.64	371.14	370.04	370.44	369.64	371.84	370.24	370.24	370.14	370.04	370.24	370.82
10	370.74	371.24	369.94	369.64	369.74	371.84	370.34	370.14	a	370.14	370.24	370.92
11	370.74	371.14	369.74	370.54	369.64	371.54	370.24	370.14	370.04	370.04	370.04	371.02
12	370.74	371.14	369.94	370.64	369.84	371.64	370.34	370.04	370.14	370.04	370.04	371.02
13	370.74	371.14	369.94	370.64	369.84	371.64	370.04	370.14	370.14	369.84	370.14	371.32
14	370.74	371.04	a	370.74	369.74	371.54	370.14	370.24	370.14	369.84	370.24	370.92
15	370.64	371.04	369.84	370.84	369.64	371.44	370.24	370.24	370.24	370.04	370.24	370.92
16	370.74	371.14	369.94	371.04	369.94	371.44	370.24	370.34	370.14	369.44	370.24	371.02
17	370.74	371.04	369.94	370.74	369.74	371.34	370.14	370.34	370.14	369.54	370.04	371.02
18	370.74	371.04	369.84	370.54	371.74	371.04	370.24	370.24	370.14	369.94	370.14	371.12
19	370.74	371.14	369.84	369.84	371.04	371.14	370.14	370.24	370.14	370.04	370.24	371.12
20	370.74	371.04	369.94	370.04	372.64	371.14	370.34	370.24	370.14	370.04	370.24	371.22
21	370.74	371.24	369.94	370.24	372.84	371.14	370.24	370.24	370.14	370.54	370.24	371.22
22	370.74	371.44	369.74	369.84	372.64	371.04	370.24	370.24	370.24	370.04	370.44	371.22
23	370.74	371.54	369.64	369.84	372.54	371.04	370.54	370.24	370.04	370.04	370.14	371.12
24	370.94	371.84	369.54	369.64	372.34	370.94	369.84	370.34	369.94	370.04	370.24	371.12
25	371.24	371.74	369.94	369.94	372.34	370.84	370.14	370.24	370.04	370.04	370.24	371.12
26	371.34	372.04	369.84	369.54	372.24	370.84	370.34	370.24	370.04	370.14	370.34	371.12
27	371.44	371.24	370.04	369.64	372.14	370.74	370.34	370.14	369.94	370.04	370.44	371.22
28	371.44	370.84	370.04	369.04	372.04	370.64	370.34	370.24	369.94	370.24	370.44	371.12
29	371.54	a	369.94	369.34	371.94	370.64	370.34	370.14	370.04	369.84	370.44	371.12
30	371.44	a	369.94	370.14	371.84	370.64	370.24	370.14	370.04	370.14	370.44	371.12
31	371.34	a	369.94	a	371.74	a	370.34	370.34	a	370.24	a	371.12

a No record.

* Incorrectly published as 379.81, instead of 369.81, in Report of State Engineer and Surveyor for 1909, page 383.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1909, page 383.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 143

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT

1910	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371.12	371.82	371.97	371.77	370.88	370.76	370.33	370.04	369.94	369.42	369.96	370.79
2	371.03	371.82	372.27	371.72	370.86	370.68	370.32	370.04	370.04	369.96	369.99	370.74
3	371.12	371.72	372.52	371.76	370.89	370.59	370.30	370.02	369.99	370.08	370.04	370.74
4	371.12	371.72	372.72	371.76	370.84	370.72	370.28	370.04	369.99	370.00	369.14	370.74
5	371.12	371.72	372.77	371.75	370.79	370.79	370.29	370.09	370.04	369.99	370.06	370.74
6	371.12	371.82	372.97	371.76	370.79	370.69	370.24	370.04	370.09	370.19	370.06	370.72
7	371.22	371.82	373.07	371.68	370.77	370.72	370.22	369.99	369.14	370.00	370.40	370.70
8	371.12	371.82	373.07	371.58	370.84	370.72	370.20	369.99	370.04	370.07	370.30	370.72
9	371.12	371.92	373.12	371.52	370.72	370.79	370.18	370.00	369.99	369.96	370.22	370.64
10	371.12	371.82	373.12	371.40	370.67	370.84	370.16	369.96	370.04	369.99	370.30	370.54
11	371.12	371.82	373.12	371.46	370.67	370.89	369.14	370.09	369.14	369.96	370.32	370.54
12	371.22	371.82	373.12	371.38	370.67	370.82	369.99	369.14	369.14	369.99	370.35	370.52
13	371.22	371.82	373.12	371.36	370.64	370.77	369.94	369.14	370.09	369.98	370.24	370.56
14	371.22	371.72	373.02	371.29	370.64	370.74	369.14	370.12	370.09	369.99	370.22	370.54
15	371.22	371.62	372.92	371.32	370.64	370.72	370.09	370.10	370.09	369.99	370.26	370.52
16	371.22	371.62	372.92	371.36	370.62	370.69	370.04	370.06	370.04	369.98	370.52	370.52
17	371.22	371.62	372.82	371.28	370.64	370.68	370.09	370.00	370.04	369.99	370.66	370.49
18	371.22	371.72	372.82	371.18	370.44	370.66	370.04	369.98	370.04	369.99	370.52	370.49
19	371.22	371.72	372.82	371.09	370.22	370.62	369.14	370.04	370.04	369.98	370.60	370.42
20	371.22	371.72	372.82	371.08	370.59	370.59	370.04	370.09	369.99	370.03	370.66	370.44
21	371.22	371.82	372.82	371.06	370.52	370.59	370.04	370.09	369.99	369.92	370.74	370.44
22	371.52	371.82	372.72	371.09	370.48	370.59	370.02	370.09	369.99	369.96	370.74	370.44
23	371.52	371.82	372.72	371.09	370.79	370.59	370.09	370.09	369.94	369.42	370.72	370.50
24	371.62	371.72	372.72	371.09	370.72	370.50	370.09	370.08	370.19	369.68	370.74	370.48
25	371.62	371.72	372.72	371.08	370.79	370.50	369.14	370.12	370.03	369.94	370.72	370.48
26	371.82	371.72	372.72	371.04	370.78	370.44	370.09	369.99	370.00	369.79	370.74	370.52
27	371.92	371.72	372.82	370.84	370.77	370.39	370.02	369.94	370.07	369.84	370.74	370.44
28	371.82	371.92	372.72	370.82	370.79	370.36	370.02	369.94	369.92	369.92	370.79	370.46
29	371.82	371.76	370.74	370.82	370.34	370.04	369.99	369.99	369.99	369.94	370.82	370.46
30	371.82	371.78	370.69	370.79	370.32	370.09	370.04	370.09	369.92	370.80	370.66	370.56
31	371.82	371.76	370.74	370.74	370.74	370.74	370.04	370.01	369.96	369.96	370.58	370.58

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1910, page 367.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT

1911	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	370.76	371.00	370.63	371.74	371.92	370.58	370.53	370.23	370.26	370.13	370.53	371.13
2	370.78	370.98	370.70	371.73	371.91	370.53	370.53	370.23	370.23	370.08	370.28	371.11
3	370.88	370.96	370.73	371.76	371.88	370.56	370.53	370.26	370.18	370.23	370.48	371.13
4	370.96	371.00	370.73	371.88	371.88	370.59	370.48	370.30	370.18	370.13	370.68	371.13
5	370.96	370.96	370.70	371.90	371.86	371.18	370.38	370.26	370.23	370.23	370.58	371.08
6	371.03	370.94	370.73	372.06	371.76	371.14	370.23	370.26	370.08	370.33	370.63	371.08
7	371.01	370.98	370.63	372.12	371.72	371.06	370.38	370.23	370.18	370.36	370.58	371.04
8	370.96	370.93	370.70	372.16	371.63	371.04	370.43	370.23	370.33	370.33	370.48	371.06
9	370.93	370.88	370.76	372.26	371.57	371.00	370.38	370.23	370.33	370.36	370.83	371.02
10	371.03	370.86	370.78	372.33	371.56	370.63	370.38	370.03	370.28	370.43	370.68	371.13
11	371.01	370.83	370.80	372.36	371.43	370.66	370.33	370.13	370.26	370.38	370.73	371.16
12	370.96	370.78	370.82	372.39	371.40	370.64	370.23	370.08	370.29	370.28	370.68	371.18
13	370.93	370.80	370.86	372.38	371.36	370.58	370.29	370.09	370.33	370.33	370.58	371.23
14	371.03	370.83	370.90	372.36	371.33	370.56	370.33	370.08	370.33	370.39	370.88	371.23
15	371.01	370.78	370.93	372.33	371.28	370.58	370.33	370.06	370.39	370.43	370.78	371.43
16	371.03	370.76	371.03	372.33	371.23	370.66	370.28	370.03	370.33	370.48	370.73	371.43
17	371.03	370.73	371.00	372.30	371.22	370.68	370.26	369.98	370.33	370.43	370.78	371.48
18	371.03	370.68	370.98	372.30	371.13	370.68	370.33	370.00	370.33	370.43	370.90	371.53
19	371.03	370.69	370.96	372.29	371.12	370.63	370.43	369.98	370.28	370.38	370.78	371.53
20	371.01	370.73	370.98	372.32	371.13	370.62	370.28	370.03	370.43	370.48	370.93	371.53

**Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT
CAUGHDENY — Continued**

1911	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	370.88	370.70	371.00	372.28	371.04	370.48	370.28	370.03	370.28	370.58	371.03	371.53
22	370.88	370.70	371.04	372.28	370.88	370.52	370.33	369.96	370.28	370.58	371.08	371.50
23	370.90	370.73	371.04	372.25	370.82	370.56	370.33	369.98	370.28	370.58	371.13	371.59
24	370.93	370.73	371.06	372.20	370.78	370.52	370.33	369.98	370.28	370.58	371.13	371.54
25	370.93	370.76	371.06	372.08	370.70	370.56	370.38	370.00	370.28	370.60	371.10	371.60
26	370.88	370.78	371.04	372.04	370.66	370.53	370.33	370.00	370.28	370.58	371.15	371.62
27	370.86	370.78	371.04	372.02	370.65	370.53	370.28	370.03	370.26	370.58	371.13	371.33
28	370.86	370.80	371.18	371.98	370.63	370.54	370.33	370.13	370.18	370.56	371.15	371.29
29	370.90	.....	371.38	371.96	370.64	370.52	370.33	370.13	370.13	370.56	371.02	371.33
30	370.68	.....	371.63	371.92	370.68	370.54	370.26	370.12	370.08	370.53	371.14	371.40
31	371.00	.....	371.66	.....	370.56	.....	370.23	370.28	.....	370.53	.....	371.49

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1911, Vol. II, page 66.

**Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT
CAUGHDENY**

1912	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371.43	370.68	370.54	371.78	372.28	371.62	370.57	370.11	370.18	370.73	370.79	371.10
2	371.40	370.70	370.56	371.90	372.18	371.47	370.56	370.12	370.28	370.83	370.83	371.13
3	371.38	370.66	370.56	372.08	372.13	371.43	370.53	370.18	370.23	370.86	370.73	371.18
4	371.38	370.66	370.57	372.16	372.08	371.47	370.53	370.18	370.18	370.86	370.78	371.23
5	371.28	370.68	370.58	372.16	371.98	371.45	370.56	370.18	370.23	370.83	370.76	371.33
6	371.28	370.68	370.60	372.18	371.88	371.43	370.54	370.26	370.23	370.88	370.73	371.08
7	371.28	370.64	370.60	372.28	371.83	371.28	370.53	370.28	370.23	370.88	370.70	371.38
8	371.23	370.60	370.54	372.43	371.78	371.18	370.52	370.23	370.28	370.86	370.73	371.38
9	371.13	370.62	370.56	372.70	371.68	371.23	370.48	370.26	370.33	370.83	370.78	371.28
10	371.08	370.62	370.56	372.73	371.58	371.12	370.42	370.23	370.33	370.78	370.80	371.38
11	371.08	370.60	370.57	372.68	371.53	371.08	370.32	370.23	370.33	370.73	370.83	371.38
12	371.08	370.62	370.58	372.66	371.70	371.06	370.34	370.18	370.28	370.73	370.88	371.08
13	371.06	370.62	370.60	372.64	371.63	371.04	*370.32	370.23	370.33	370.78	371.03	371.28
14	371.03	370.62	370.64	372.40	371.83	371.08	370.36	370.08	370.33	370.66	370.98	371.28
15	370.98	370.62	370.64	372.18	371.50	371.06	370.42	370.08	370.38	370.66	370.88	371.18
16	371.03	370.62	370.65	372.16	371.53	371.02	370.38	370.13	370.43	370.68	370.93	371.18
17	371.06	370.58	370.66	372.18	371.57	370.98	370.30	370.18	370.48	370.70	370.98	371.28
18	371.14	370.48	370.70	372.23	371.57	370.96	370.30	370.23	370.48	370.69	370.98	371.18
19	371.02	370.43	370.88	372.67	371.56	370.94	370.22	370.23	370.50	370.68	371.00	371.08
20	370.98	370.48	370.96	373.02	371.62	370.90	370.28	370.18	370.46	370.70	371.00	371.08
21	370.93	370.53	371.04	372.97	371.68	370.88	370.23	370.18	370.46	370.73	370.98	371.18
22	370.96	370.53	371.23	372.87	371.77	370.86	370.22	370.23	370.53	370.70	370.98	371.23
23	370.83	370.48	371.33	372.47	371.68	370.83	370.20	370.18	370.56	370.66	371.00	371.28
24	370.86	370.48	371.33	372.82	371.47	370.77	370.16	370.18	370.78	370.70	370.98	371.28
25	370.84	370.52	371.36	372.78	371.62	370.72	370.14	370.18	370.73	370.78	370.98	371.18
26	370.83	370.56	371.33	372.76	371.52	370.72	370.13	370.16	370.78	370.80	370.96	371.13
27	370.80	370.56	371.28	372.38	371.48	370.72	370.13	370.13	370.53	370.70	370.98	371.13
28	370.78	370.58	371.28	372.47	371.48	370.70	370.13	370.18	370.80	370.88	370.98	371.03
29	370.83	370.58	371.40	372.62	371.48	370.70	370.13	370.18	370.83	371.88	371.08	371.03
30	370.78	.....	371.52	372.32	371.53	370.67	370.13	370.13	370.88	370.88	371.08	371.03
31	370.73	.....	371.56	.....	371.47	.....	370.13	370.13	.....	370.83	.....	371.18

* Incorrectly published as 370.90, instead of 370.09, in Report of State Engineer and Surveyor for 1912, Vol. II, page 62.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1912, Vol. II, page 62.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 145

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT

1913	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1....	371.06	371.91	371.11	372.61	371.41	370.81	370.36	369.81	369.51	369.66	369.76	370.56
2....	371.16	371.81	371.11	372.81	371.41	370.83	370.31	369.79	369.46	369.59	369.21	370.46
3....	371.21	371.81	371.16	372.91	371.31	370.83	370.31	369.89	369.44	369.41	370.26	370.46
4....	371.01	371.71	371.11	372.81	371.26	370.81	370.36	369.81	369.56	369.56	370.01	370.41
5....	371.21	371.61	371.06	372.61	371.26	370.79	370.31	369.86	369.46	369.61	369.21	370.86
6....	371.31	371.61	371.01	372.71	371.21	370.79	369.91	369.81	369.56	369.63	370.31	370.46
7....	371.51	371.51	370.91	372.61	371.11	370.66	370.01	369.81	369.56	369.69	370.26	370.51
8....	371.61	371.51	370.81	372.61	371.01	370.66	370.21	369.79	369.51	369.66	370.36	370.46
9....	371.81	371.41	370.86	372.61	370.96	370.64	370.26	369.81	369.61	369.56	370.31	370.51
10....	371.81	371.41	370.91	372.71	370.86	370.64	370.66	369.79	369.61	369.61	370.33	370.56
11....	371.91	371.31	370.91	372.81	370.84	370.66	370.16	369.79	369.56	369.51	370.41	370.56
12....	371.81	371.31	371.01	372.51	370.86	370.61	370.16	369.81	369.66	369.66	370.43	370.61
13....	371.91	371.41	371.16	372.41	370.81	370.66	370.26	369.76	369.26	369.51	370.46	370.56
14....	371.91	371.81	372.21	372.81	370.81	370.56	370.01	369.76	369.31	369.51	370.41	370.66
15....	371.81	371.21	371.41	372.21	370.79	370.53	369.99	369.66	369.44	369.61	370.43	370.66
16....	371.71	371.21	371.71	372.11	370.76	370.56	369.99	369.66	369.41	369.59	370.41	370.51
17....	371.91	371.31	371.81	372.11	370.79	370.46	369.99	369.63	369.41	369.81	370.43	370.56
18....	372.01	371.21	372.01	372.01	370.71	370.51	369.96	369.61	369.46	369.56	370.41	370.53
19....	372.14	371.21	371.81	371.71	370.51	370.56	369.96	369.56	369.36	369.56	370.46	370.56
20....	372.21	371.11	371.81	371.81	370.61	370.46	369.99	369.71	369.51	369.66	370.46	370.61
21....	372.21	371.06	371.91	371.71	370.61	370.48	369.99	369.61	369.56	369.58	370.46	370.53
22....	372.31	371.11	372.61	371.81	370.61	370.41	369.96	369.71	369.46	369.96	370.56	370.51
23....	372.41	371.11	371.91	371.71	370.71	370.41	370.01	369.41	369.46	370.06	370.16	370.76
24....	372.81	371.16	372.01	371.71	370.66	370.41	369.96	369.61	369.46	370.11	370.56	370.46
25....	372.21	371.11	372.11	371.61	370.66	370.46	369.96	369.61	369.51	370.11	370.46	370.51
26....	372.11	371.16	372.21	371.61	370.71	370.41	369.99	369.71	369.41	370.16	370.56	370.36
27....	372.01	371.11	372.61	371.56	370.86	370.36	369.93	369.61	369.26	369.26	370.61	370.46
28....	372.21	371.06	372.91	371.51	370.81	370.36	369.96	369.51	369.51	369.26	370.81	370.36
29....	372.31	.....	373.21	371.41	370.86	370.43	369.81	369.51	369.41	369.26	370.56	370.36
30....	372.21	.....	373.61	371.31	370.81	370.36	369.86	369.61	369.51	369.26	370.61	370.36
31....	372.01	.....	373.81	.....	370.81	.....	369.96	369.56	.....	370.11	.....	370.36

a Incorrectly published as 371.91, instead of 370.91, in Report of State Engineer and Surveyor for 1914, Vol. II, page 124.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT

1914	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1....	370.31	370.06	369.91	371.71	371.86	370.86	370.61	370.11	370.61	370.21	369.81	370.91
2....	370.36	370.11	369.89	371.81	371.81	370.86	370.51	370.11	370.51	370.26	369.71	371.01
3....	370.33	370.06	369.81	371.86	371.81	370.81	370.51	370.06	370.61	370.26	369.81	371.01
4....	370.26	370.13	369.83	371.88	371.76	370.81	370.41	370.11	370.51	370.31	369.61	370.81
5....	370.26	370.21	369.86	371.91	371.81	370.76	370.41	370.06	370.66	370.26	369.71	370.91
6....	370.24	370.36	369.81	371.96	371.76	370.76	370.41	370.06	370.71	370.16	369.71	370.86
7....	370.16	370.31	369.81	371.91	371.71	370.71	370.46	370.01	370.51	370.21	369.91	370.71
8....	370.24	370.31	369.83	372.01	371.76	370.81	370.41	369.96	370.61	370.26	369.81	370.61
9....	369.21	370.26	369.81	372.06	371.71	371.01	370.46	369.91	370.61	369.26	369.81	370.51
10....	370.06	370.11	369.81	372.11	371.61	370.86	370.41	369.91	370.56	370.21	369.86	370.51
11....	370.16	370.01	369.79	372.01	371.56	370.91	370.36	370.01	370.71	370.16	369.91	370.36
12....	370.16	370.11	369.81	371.96	371.61	370.86	370.36	369.96	370.61	370.21	369.71	370.31
13....	370.21	370.01	369.61	371.91	371.66	370.86	370.36	369.96	370.56	370.21	369.76	370.31
14....	370.21	370.01	369.63	371.89	371.56	370.81	370.41	369.91	370.51	370.21	369.71	370.31
15....	370.11	370.11	369.71	372.01	371.56	370.71	370.36	369.91	370.61	370.26	370.21	370.31
16....	370.11	370.11	369.76	.....	371.51	370.66	370.31	369.91	370.61	370.26	369.71	370.51
17....	370.16	370.09	369.76	372.11	371.51	370.71	370.31	369.96	370.46	370.26	369.61	370.71
18....	370.11	370.06	369.83	372.16	371.46	370.76	370.26	369.86	370.41	370.11	370.81	370.61
19....	370.16	370.03	369.81	372.11	371.41	370.71	370.31	369.91	370.41	370.06	371.01	370.51
20....	370.18	370.11	369.93	372.11	371.31	370.66	370.21	370.16	370.36	370.21	371.01	370.31

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT
CAUGHDENY — Continued

1914	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21....	370.13	370.16	369.96	372.16	371.26	370.71	370.11	370.26	370.36	370.11	370.71	370.36
22....	370.13	370.13	369.93	372.11	371.26	370.66	370.11	370.21	370.41	370.06	370.91	370.31
23....	370.11	370.06	369.94	372.11	371.16	370.61	370.06	370.16	370.31	370.11	370.91	370.31
24....	370.11	370.01	369.96	372.06	371.21	370.56	370.21	370.11	370.21	370.06	370.86	370.41
25....	370.09	369.91	370.01	372.11	371.16	370.56	370.16	370.26	370.26	370.06	370.81	370.31
26....	370.06	369.91	370.01	372.16	371.11	370.51	370.16	370.21	370.21	370.01	370.81	370.31
27....	370.11	369.89	370.41	372.06	371.06	370.51	370.11	370.21	370.11	369.81	370.91	370.31
28....	370.09	369.91	370.86	372.01	371.01	370.71	370.16	370.31	370.16	369.96	371.01	370.36
29....	370.16	.....	371.06	371.96	370.96	370.51	370.11	370.36	370.31	370.01	371.11	370.31
30....	370.21	.....	371.31	371.91	370.86	370.41	370.16	370.41	370.21	369.86	371.01	370.81
31....	370.41	.....	371.51	.....	370.91	.....	370.11	370.51	.....	369.86	.....	370.36

a No record. b Incorrectly published as 370.01, instead of 370.11; c Incorrectly published as 333.21, instead of 339.81; d Incorrectly published as 363.81, instead of 369.81, in Report of State Engineer and Surveyor for 1914, Vol. II, page 125.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT
CAUGHDENY

1915	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1...	370.21	370.91	371.61	370.61	371.01	370.51	370.41	370.46	370.46	370.7	370.9	371.0
2...	370.21	371.01	371.51	370.66	371.01	370.46	370.51	370.51	370.41	370.9	370.4	371.0
3...	370.31	371.11	371.41	370.61	370.96	370.46	370.51	370.51	370.46	370.7	370.7	370.95
4...	370.31	370.91	371.21	370.66	371.01	370.41	370.61	370.71	370.41	370.9	370.85	370.8
5...	370.36	371.01	371.31	370.71	370.91	370.41	370.71	370.61	370.41	370.8	370.8	370.9
6...	370.31	370.91	371.26	370.66	370.91	370.36	370.61	370.56	370.51	371.0	370.8	370.85
7...	370.11	370.81	371.21	370.71	371.01	370.41	370.66	370.51	370.46	371.0	370.8	370.85
8...	370.21	370.71	371.11	370.76	370.96	370.21	370.71	370.61	370.46	371.0	370.9	370.8
9...	370.41	370.71	371.11	370.81	370.81	370.26	370.66	370.56	370.51	370.9	370.75	370.8
10...	370.51	370.66	371.01	370.91	370.86	370.21	370.71	370.61	370.46	371.0	370.7	370.7
11...	370.51	370.61	371.01	370.91	a370.91	370.21	370.81	370.61	370.41	371.0	370.9	370.8
12...	370.56	370.66	370.91	371.01	370.81	370.26	370.81	370.66	370.51	370.9	370.7	370.8
13...	370.61	370.61	370.91	371.11	370.71	370.41	370.76	370.61	370.71	371.0	370.4	370.75
14...	370.61	370.71	370.86	371.21	370.71	370.31	370.71	370.61	370.61	370.8	370.7	370.7
15...	370.66	370.76	370.81	371.26	370.66	370.41	370.81	370.66	370.61	370.9	370.65	370.7
16...	370.61	370.81	370.81	371.21	370.86	370.36	370.71	370.61	370.71	370.9	370.7	370.65
17...	370.71	370.91	370.76	371.16	370.81	370.31	370.61	370.51	370.61	370.85	370.8	370.8
18...	370.71	371.01	370.71	371.21	370.71	370.31	370.71	370.46	370.71	371.0	370.85	370.75
19...	370.81	371.01	370.66	371.16	370.66	370.21	370.71	370.51	370.61	371.0	371.1	370.8
20...	371.01	370.96	370.66	371.21	370.71	370.31	370.66	370.56	370.66	371.05	370.6	370.8
21...	371.06	371.01	370.71	371.21	370.81	370.26	b370.71	370.61	370.61	371.0	370.9	370.9
22...	371.11	370.96	370.61	371.26	370.71	370.41	370.66	370.56	370.71	370.9	370.9	371.0
23...	371.21	370.96	370.61	371.11	370.6	370.31	370.71	370.51	370.61	371.0	371.1	371.0
24...	371.21	371.01	370.56	371.16	370.66	370.41	370.61	370.61	370.66	371.0	371.1	371.0
25...	371.26	371.21	370.61	371.06	370.66	370.36	370.61	c370.51	370.66	371.0	371.2	371.1
26...	371.11	371.41	370.51	371.11	370.61	370.31	370.66	370.46	370.71	371.05	371.1	371.0
27...	371.11	371.51	370.61	371.06	370.61	370.26	370.61	370.51	370.61	370.9	371.0	371.2
28...	371.01	371.51	370.81	371.01	370.61	370.31	370.61	370.61	370.71	370.95	371.0	371.2
29...	371.01	.....	370.51	371.16	370.51	370.36	370.51	370.51	370.61	370.75	370.95	371.4
30...	370.91	.....	370.51	371.06	370.56	370.51	370.51	370.51	370.61	370.7	370.9	371.4
31...	370.96	.....	370.61	.....	370.51	.....	370.46	370.46	.....	370.9	.....	371.3

a Incorrectly published as 270.91, instead of 370.91; b Incorrectly published as 270.71, instead of 370.71; c Incorrectly published as 370.61, instead of 370.51, in Report of State Engineer and Surveyor for 1915, Vol. II, page 127.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 147

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT

1916	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	371.4	371.6	370.9	371.3	371.5	371.2	370.9	370.3	370.0	370.2	369.75	370.4
2	371.3	371.6	370.85	371.6	371.45	371.2	370.9	370.35	370.0	370.3	369.9	370.35
3	371.4	371.55	370.9	371.8	371.5	371.3	370.85	370.3	370.0	370.25	369.9	370.55
4	371.5	371.6	370.8	372.0	371.4	371.2	370.8	370.3	370.0	370.3	370.0	370.55
5	371.6	371.55	370.8	372.0	371.3	371.1	370.8	370.3	370.0	370.2	370.0	370.6
6	371.7	371.6	370.8	372.1	371.2	371.1	370.75	370.25	370.1	370.2	370.05	370.4
7	371.75	371.4	370.9	372.0	371.2	371.3	370.75	370.25	370.0	370.15	370.0	370.7
8	371.7	371.5	370.8	372.0	371.3	371.1	370.8	370.2	370.0	370.15	370.05	370.8
9	371.8	371.4	370.7	371.9	371.25	371.1	370.7	370.2	370.0	370.1	369.95	370.7
10	371.8	371.3	370.7	371.9	371.05	371.05	370.7	370.4	370.0	370.0	369.95	370.65
11	371.7	371.3	370.65	371.8	371.1	371.0	370.65	370.3	370.0	370.0	370.15	370.85
12	371.6	371.2	370.7	371.7	371.15	370.95	370.7	370.2	370.05	370.0	370.15	370.7
13	371.6	371.21	370.6	371.8	371.2	370.9	370.75	370.3	370.1	370.0	370.05	370.7
14	371.65	371.25	370.6	371.75	371.3	370.9	370.8	370.0	370.0	369.9	370.1	370.65
15	371.6	371.1	370.55	371.7	371.3	370.85	370.9	370.15	370.05	370.0	370.1	370.7
16	371.55	371.0	370.6	371.8	371.2	371.0	370.9	370.2	370.0	370.0	369.0	370.75
17	371.55	371.0	370.5	371.7	371.3	371.0	370.9	370.1	370.0	369.2	370.05	370.7
18	371.6	370.9	370.5	371.5	371.5	371.0	370.85	370.0	370.05	370.0	370.0	370.8
19	371.5	371.0	370.45	371.6	371.8	371.1	370.8	370.0	370.0	370.0	370.0	370.65
20	371.55	370.9	370.5	371.6	371.7	371.1	370.8	370.1	370.0	370.0	369.95	370.7
21	371.4	370.9	370.5	371.55	371.75	371.2	370.6	370.05	370.05	370.0	369.95	370.75
22	371.4	370.8	370.5	371.6	371.7	371.1	370.6	370.15	370.1	370.0	369.95	370.75
23	371.35	370.8	370.45	371.55	371.8	371.1	370.55	370.2	370.1	370.1	370.05	370.7
24	371.4	370.75	370.35	371.6	371.7	371.05	370.5	370.1	369.95	370.1	369.75	370.6
25	371.4	370.75	370.3	371.6	371.6	371.0	370.5	370.0	369.8	370.0	369.9	370.6
26	371.35	370.8	370.3	371.5	371.6	371.0	370.55	370.1	370.0	369.8	370.2	370.6
27	371.4	370.8	370.25	371.45	371.55	370.95	370.4	370.1	370.1	370.1	370.1	370.6
28	371.5	370.85	370.3	371.5	371.6	370.9	370.5	370.1	370.0	369.8	370.2	370.55
29	371.6	370.9	370.45	371.45	371.5	370.9	370.45	370.0	369.6	370.0	370.25	370.6
30	371.7	.....	370.7	371.5	371.1	370.95	370.4	370.0	370.2	370.0	370.3	370.55
31	371.7	.....	371.0	.....	371.2	.....	370.2	370.0	.....	369.95	.....	370.5

aily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT, for the year ended June 30, 1917. Mrs. J. R. Hiller, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	370.9	370.3	370.0	370.2	369.75	370.4	370.6	370.4	370.1	371.65	371.15	370.85
2	370.9	370.35	370.0	370.3	369.9	370.35	370.6	370.4	370.2	371.7	371.0	370.8
3	370.85	370.8	370.0	370.25	369.9	370.55	370.6	370.4	370.2	371.7	371.0	370.8
4	370.8	370.3	370.0	370.3	370.0	370.55	370.6	370.4	370.2	371.85	371.0	370.8
5	370.8	370.3	370.0	370.2	370.0	370.6	370.65	370.3	370.2	371.95	371.15	370.8
6	370.75	370.25	370.1	370.2	370.05	370.4	370.6	370.3	370.2	371.95	371.05	370.75
7	370.75	370.25	370.0	370.15	370.0	370.7	370.65	370.4	370.25	371.7	371.05	370.75
8	370.8	370.2	370.0	370.15	370.05	370.8	370.75	370.25	370.2	371.8	371.0	370.75
9	370.7	370.2	370.0	370.1	369.95	370.7	370.75	370.3	370.15	371.75	371.0	370.8
10	370.7	370.4	370.0	370.0	369.95	370.65	370.75	370.3	370.2	371.6	370.9	370.8
11	370.65	370.3	370.0	370.0	370.15	370.85	370.8	370.3	370.2	371.7	370.9	370.85
12	370.7	370.2	370.05	370.0	370.15	370.7	370.8	370.3	370.2	371.6	370.9	371.0
13	370.75	370.3	370.1	370.0	370.05	370.7	370.7	370.3	370.25	371.55	370.9	371.1
14	370.8	370.0	370.0	369.9	370.1	370.65	370.8	370.3	370.3	371.5	370.85	371.0
15	370.9	370.15	370.05	370.0	370.1	370.7	370.7	370.2	370.35	371.45	370.85	371.0
16	370.9	370.2	370.0	370.0	369.0	370.75	370.75	370.2	370.4	371.4	370.85	371.0
17	370.9	370.1	370.0	369.2	370.05	370.7	370.75	370.2	370.4	371.4	370.8	370.9
18	370.85	370.0	370.05	370.0	370.0	370.8	370.75	370.1	370.5	371.35	370.8	370.95
19	370.8	370.0	370.0	370.0	370.0	370.65	370.75	370.2	370.5	371.3	370.75	370.95
20	370.8	370.1	370.0	370.0	369.95	370.7	370.75	370.1	370.5	371.3	370.7	370.9

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER ABOVE DAM AT CAUGHDENOT, for the year ended June 30, 1917 — *Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	370.6	370.05	370.05	370.0	369.95	370.75	370.7	370.1	370.5	371.3	370.7	370.9
22.....	370.6	370.15	370.1	370.0	369.95	370.75	370.7	370.1	370.5	371.8	370.85	370.9
23.....	370.55	370.2	370.1	370.1	370.05	370.7	370.7	370.0	370.6	371.8	370.6	370.85
24.....	370.5	370.1	369.95	370.1	369.75	370.6	370.7	370.0	370.7	371.25	370.6	370.75
25.....	370.5	370.0	369.8	370.0	369.9	370.6	370.7	370.0	370.9	371.8	370.6	370.75
26.....	370.55	370.1	370.0	369.8	370.2	370.6	370.65	370.0	371.1	371.25	370.6	370.8
27.....	370.4	370.1	370.1	370.1	370.1	370.6	370.65	370.0	371.3	371.2	370.7	370.7
28.....	370.5	370.1	370.0	369.8	370.2	370.55	370.65	370.1	371.4	371.15	370.75	370.75
29.....	370.45	370.0	369.6	370.0	370.25	370.6	370.7	.....	371.6	371.15	370.75	370.8
30.....	370.4	370.0	370.2	370.0	370.3	370.55	370.6	.....	371.6	71.15	370.8	370.7
31.....	370.2	370.0	.....	369.95	.....	370.5	370.5	.....	371.65	.....	370.8	.....

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT CAUGHDENOT

1904	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	370.83	367.73	365.53	365.53	365.53	364.73	365.73	.....
2.....	370.73	367.53	365.43	365.53	365.33	.....	365.83	.....
3.....	370.63	367.23	.....	365.53	365.33	364.93	365.63	.....
4.....	370.63	367.03	365.53	365.43	.....	364.93	365.53	.....
5.....	370.53	.....	365.43	365.43	365.33	365.03	365.73	.....
6.....	370.33	366.93	365.53	365.43	365.33	364.93	.....	.....
7.....	370.13	366.83	365.43	.....	365.33	364.93	365.43	.....
8.....	366.83	365.43	365.33	365.33	365.03	365.43	.....
9.....	370.03	366.73	365.43	365.33	365.43	.....	365.43	.....
10.....	369.73	366.93	.....	365.33	365.33	365.13	365.33	.....
11.....	369.53	366.63	365.33	365.23	.....	365.03	365.33	.....
12.....	369.43	.....	366.33	365.23	365.23	365.33	365.33	.....
13.....	369.23	366.73	366.13	365.23	365.23	365.63	.....	.....
14.....	369.13	366.53	365.13	.....	365.23	365.13	364.83	.....
15.....	366.43	365.13	365.23	365.23	365.23	365.13	.....
16.....	368.63	366.33	365.13	365.23	365.23	.....	365.03	.....
17.....	368.73	366.33	.....	365.13	365.13	365.33	365.03	.....
18.....	368.63	366.23	365.23	365.13	.....	365.33	365.43	.....
19.....	368.63	.....	365.13	365.13	365.13	365.33	365.03	.....
20.....	368.43	366.23	365.13	365.23	365.23	365.63	.....	.....
21.....	368.33	366.03	365.13	.....	365.13	365.23	364.83	.....
22.....	365.53	365.13	365.43	365.23	365.63	365.03	.....
23.....	371.13	368.03	365.93	365.23	365.53	365.23	.....	364.93	.....
24.....	370.83	368.03	365.93	.....	365.63	365.23	365.63	365.03	.....
25.....	370.63	368.03	365.83	365.13	365.53	.....	365.83	364.83	.....
26.....	370.63	367.93	.....	365.13	365.43	364.73	365.73	364.93	.....
27.....	370.73	367.43	365.63	365.53	365.53	364.73	365.63	.....	.....
28.....	370.83	367.73	365.73	365.53	.....	364.73	365.83	364.93	.....
29.....	370.93	.....	365.73	365.53	365.43	364.83	365.73	365.13	.....
30.....	370.83	367.63	365.63	365.53	365.43	364.83	.....	364.83	.....
31.....	367.53	.....	.....	365.43	.....	365.73	.....	.....

No record on dates left blank. *b* Incorrectly published as 369.6, instead of 369.4; *c* Incorrectly published as 365.9, instead of 364.9, in Report of State Engineer and Surveyor for 1908, page 480.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 480.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 149

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT CAUGHDENOT

1905	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1				371.53	369.23	366.23	367.13	366.03	365.73		366.53	366.73
2				371.73	369.13	366.23		366.13	365.83	365.73	366.33	367.33
3				371.73	369.03	366.03	367.13	366.13		365.63	367.03	
4				371.83	368.93		367.23	366.03	366.33	365.63	366.53	367.33
5				372.03	368.93	366.03	367.23	366.03	366.43	365.63		367.53
6				372.03	368.63	365.93	367.13		366.53	365.63	367.23	367.53
7				372.23	368.53	366.23	367.03	365.93	366.73	365.63	366.63	367.63
8				372.23	368.53	366.03	366.93	365.93	366.73		366.93	367.63
9				372.13	368.13	366.03		366.13	366.73	365.43	366.83	367.73
10				372.03	367.73	366.13	366.73	365.93		365.63	366.93	
11				371.83	368.13		366.63	365.83	366.63	365.83	367.03	368.33
12				371.73	368.13	366.03	366.63	366.03	366.73	365.73		367.83
13				371.73	367.93	366.13	366.53		366.53	365.93	366.73	367.73
14				371.73	367.93	366.03	366.53	365.83	366.53	366.43	367.03	367.63
15				371.53	367.83	366.13	366.43	366.03	366.63		367.03	367.23
16				371.33	367.63	366.03		365.93	366.43	366.53	366.63	367.23
17				371.03	367.53	366.03	366.43	366.03		366.53	366.73	
18				370.83	367.53		366.43	366.13	366.43	366.63	366.83	367.23
19				370.73	367.23	366.73	366.33	366.03	366.43	366.53		367.23
20				370.53	367.23	366.83	366.23		366.43	366.73	366.73	367.13
21				370.43	367.13	366.73	366.23	365.93	366.43	366.93	366.73	367.23
22				370.33	367.13	367.03	366.13	365.83	366.33		366.63	367.43
23				370.23	366.93	366.93		365.73	366.23	366.73	366.53	367.33
24			366.23	370.23	366.83	367.13	365.93	365.73		366.83	366.63	
25			366.83	370.03	366.73		365.73	365.63	366.13	366.73	366.43	367.53
26			367.93	369.93	366.73	367.23	365.73	365.53	366.03	366.63		367.53
27			369.13	369.73	366.63	367.23	365.63		366.03	366.83	366.13	367.63
28			369.93	369.63	366.53	367.33	365.53	365.43	365.93	366.63	366.63	367.73
29			370.43	369.53	366.43	367.33	365.53	365.43	365.93		366.53	367.93
30			370.83	369.33	366.33	367.23		365.53	365.83	366.53	366.23	367.43
31			371.23		366.33		366.03	365.73		366.53		

No record on dates left blank. b Incorrectly published as 365.0, instead of 365.8, in Report of State Engineer and Surveyor for 1908, page 481.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 481.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT CAUGHDENOT

1906	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	367.63	368.33	367.03		367.83	366.33		365.63	365.13	364.93	364.73	365.43
2	367.73	368.13	366.83	368.33	368.03	366.23	366.13	365.63		364.93	364.83	
3	367.63	368.33	367.03	368.43	367.63		366.03	365.63	365.03	364.93	364.73	365.63
4	367.73			368.33	368.03	366.13	366.13	365.63	365.03	364.93		365.53
5	367.73	367.83	367.23	368.63	368.03	366.03	366.13		365.03	365.03	364.83	365.53
6	367.93	367.63	367.43	368.63		365.93	366.13	365.73	364.93	365.03	364.73	365.93
7		367.43	367.43	368.63	367.83	365.93	366.03	365.63	364.93		364.73	366.13
8	368.03	367.43	367.33		367.63	366.13		365.03	364.93	365.03	364.83	366.43
9	367.93	367.33	367.13	368.93	367.83	366.63	365.93	365.63		365.23	364.73	
10	367.93	367.13	367.13	369.43	367.33		365.93	365.63	364.93	365.13	364.73	366.53
11	367.83			369.23	367.43	366.63	365.93	365.53	364.93	365.13		366.23
12	367.83	367.13	367.03	369.03	367.53	366.73	366.03	365.53	364.93	365.13	364.83	366.23
13	367.73	367.13	367.03	369.13		366.73	366.03	365.53	364.83	365.03	364.93	366.03
14		366.83	366.93	369.23	367.53	366.63	365.93	365.43	364.73		364.93	366.13
15	367.63	366.73	366.93		367.43	366.53		365.83	364.83	365.03	364.93	366.23
16	367.63	366.73	366.73	369.33	367.33	366.53	365.83	365.43		365.03	364.83	
17	367.53	366.63	366.63	369.43	367.33		365.73	365.43	364.83	365.23	364.93	366.53
18	367.63			369.43	367.23	366.83	365.63	365.43	364.83			366.53
19	367.63	366.43	366.63	369.33	367.13	366.73	365.63		364.73	365.43	365.03	366.53
20	367.53	366.43	366.43	369.33		366.53	365.63	365.33	364.73	365.33	365.13	366.63

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT
CAUGHDENY — *Continued*

1906	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21.....	367.73	366.43	366.53	369.23	366.93	366.43	365.53	365.43	364.73	.....	365.13	366.63
22.....	367.83	366.43	366.33	.....	366.93	366.43	.....	365.33	364.73	365.23	365.13	366.53
23.....	368.03	366.73	366.33	368.93	366.73	366.23	365.43	365.33	.....	365.03	365.13	.....
24.....	368.13	366.73	366.33	368.83	366.53	.....	365.43	365.33	364.83	364.73	365.23	366.43
25.....	368.43	.....	.....	368.73	366.43	366.23	365.33	365.33	365.03	364.73	.....	366.33
26.....	368.63	366.93	366.23	368.63	366.23	366.13	365.43	.....	364.93	361.63	365.43	366.23
27.....	368.73	367.03	366.53	368.53	.....	366.03	365.43	365.33	361.83	364.73	365.23	366.13
28.....	.....	366.83	367.13	368.33	366.53	366.03	365.33	365.23	364.83	.....	365.43	366.13
29.....	368.53	.....	367.43	.....	366.43	365.93	.....	365.23	364.93	364.73	365.53	366.03
30.....	368.53	.....	367.83	368.13	366.43	365.93	365.63	365.23	.....	364.73	365.63	.....
31.....	368.33	.....	368.03	.....	366.33	.....	365.63	365.23	.....	361.73	.....	366.63

No record on dates left blank. b Incorrectly published as 364.0, instead of 365.0, in Report of State Engineer and Surveyor for 1908, page 481.

NOTE.— Supersedes table published in Report of State Engineer and Surveyor for 1908, page 481.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT
CAUGHDENY

1907	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	366.68	367.18	365.48	369.28	367.88	366.78	365.78	365.68	.....	364.98	366.18	.....
2.....	366.88	367.08	365.48	369.18	367.98	.....	365.78	365.68	364.98	365.08	366.28	366.68
3.....	367.28	.....	.....	369.18	367.98	366.38	365.98	365.58	364.88	365.08	.....	366.78
4.....	368.58	367.18	365.38	369.08	368.18	366.38	365.98	.....	365.08	365.08	366.18	366.68
5.....	368.78	366.88	365.28	368.78	.....	366.48	365.98	365.68	365.08	365.08	366.58	366.58
6.....	.....	366.78	365.18	368.78	367.98	366.18	365.98	365.58	365.08	.....	366.88	366.48
7.....	369.35	366.78	365.28	.....	367.88	366.38	.....	365.58	365.08	365.28	366.68	366.48
8.....	369.68	366.58	365.28	368.98	367.83	366.58	365.88	365.68	.....	365.28	367.38	.....
9.....	369.68	366.58	365.18	368.58	367.88	.....	365.78	365.58	364.98	365.58	367.78	366.48
10.....	369.68	.....	.....	368.18	367.58	366.58	365.78	365.58	365.08	365.68	.....	366.53
11.....	369.58	366.38	365.18	368.28	367.58	366.78	365.88	.....	365.18	365.78	367.88	366.68
12.....	369.68	366.58	365.18	368.28	.....	366.48	365.78	365.48	365.18	365.88	367.88	366.78
13.....	.....	366.38	365.18	368.18	367.68	366.48	365.78	365.38	365.18	.....	367.88	367.08
14.....	369.28	366.18	365.28	.....	367.58	366.28	.....	365.28	365.18	365.88	367.38	367.48
15.....	369.08	366.08	365.38	367.88	367.88	366.18	365.78	365.38	.....	365.88	367.78	.....
16.....	368.98	365.98	365.58	367.88	367.28	.....	365.78	365.38	365.18	365.98	367.68	365.88
17.....	368.98	.....	.....	367.68	367.28	366.08	365.68	365.38	365.18	365.88	.....	365.98
18.....	369.18	365.88	366.18	367.68	367.28	366.08	365.68	.....	365.18	365.68	367.48	366.48
19.....	368.68	365.98	366.48	367.58	.....	365.98	365.68	365.28	365.28	365.48	367.38	366.38
20.....	.....	365.78	366.08	367.28	366.88	365.98	365.68	365.28	365.18	.....	367.28	367.48
21.....	368.28	365.58	366.58	.....	366.78	365.78	.....	365.28	365.08	365.28	367.58	366.38
22.....	368.28	365.78	366.78	367.28	366.78	365.78	365.68	365.18	.....	365.38	367.18	.....
23.....	368.28	365.68	367.08	367.18	366.88	.....	365.58	365.18	365.18	365.28	367.08	366.68
24.....	368.18	.....	.....	367.18	366.78	365.68	365.68	365.18	365.08	365.28	.....	367.48
25.....	368.18	365.48	367.88	367.58	366.68	365.98	365.68	.....	364.88	365.38	366.98	367.98
26.....	367.88	365.58	368.28	367.68	.....	365.88	365.58	364.98	364.98	365.18	366.98	.....
27.....	.....	365.48	368.48	367.88	366.98	365.38	365.38	364.98	364.98	.....	366.68	366.58
28.....	367.68	365.48	368.78	.....	366.28	.....	365.08	365.08	365.08	365.78	366.88	366.68
29.....	367.48	.....	368.98	368.08	366.68	365.78	365.78	364.98	.....	365.78	366.88	.....
30.....	367.38	.....	369.08	367.98	366.68	.....	365.68	365.08	364.98	366.88	366.88	369.08
31.....	367.38	.....	.....	.....	366.58	.....	365.68	364.98	.....	366.08	.....	369.88

NOTE.— Supersedes table published in Report of State Engineer and Surveyor for 1908, page 482.
Elevations corrected to hundredths of a foot.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 151

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT
CAUGHDENOT

1908	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	368.78	366.98	367.78	370.08	368.98	367.38	366.08	365.98	365.06	364.70	364.86	365.46
2.....	368.78	367.38	367.98	369.98	369.38	367.38	365.88	365.98	364.86	364.76	364.96	365.26
3.....	368.88	368.08	367.78	369.78	369.18	367.28	365.88	365.98	364.76	364.76	364.96	365.56
4.....	368.98	367.68	367.78	369.88	369.58	367.18	365.88	365.88	364.76	364.76	364.76	365.56
5.....	a	366.98	367.78	369.98	369.48	367.18	365.68	365.88	364.86	364.76	364.86	365.46
6.....	369.78	367.28	367.88	369.78	369.48	367.08	365.68	365.78	364.86	364.76	364.86	365.46
7.....	368.88	366.98	367.68	369.78	369.88	366.88	365.68	365.78	364.76	364.86	365.06	365.66
8.....	368.68	366.88	367.68	370.18	369.68	366.78	365.28	365.68	364.76	364.76	365.06	365.26
9.....	368.28	366.68	367.58	369.58	369.28	366.68	365.38	365.68	364.76	364.66	365.16	365.46
10.....	368.08	366.58	367.58	369.58	369.18	366.58	365.88	365.68	364.76	364.66	364.96	365.36
11.....	368.58	366.38	367.68	369.98	369.38	366.48	365.88	365.58	364.76	364.86	365.16	365.46
12.....	367.98	366.28	367.68	369.68	369.28	366.38	365.78	365.58	364.66	364.76	365.06	365.36
13.....	367.78	366.18	368.08	370.08	369.08	366.38	365.68	365.58	364.66	364.86	365.06	365.26
14.....	367.68	365.98	368.28	370.08	369.08	366.28	365.68	365.56	364.66	364.86	365.06	365.36
15.....	367.78	366.68	368.78	369.98	369.08	367.18	365.58	365.46	364.66	364.76	365.16	365.26
16.....	367.68	367.18	369.18	369.78	368.98	366.88	365.58	365.56	365.06	364.66	365.26	365.36
17.....	368.48	367.98	369.28	369.58	368.78	366.88	365.58	365.46	364.56	364.66	365.06	364.96
18.....	367.48	366.18	369.38	369.78	368.78	366.98	365.68	365.46	364.56	364.66	365.06	364.86
19.....	367.48	366.58	369.48	369.68	368.78	366.88	365.98	365.46	364.56	364.76	365.26	364.36
20.....	367.48	366.58	369.38	369.68	368.68	366.68	366.08	365.36	364.66	364.76	365.26	364.16
21.....	367.28	368.58	369.38	369.38	368.48	366.68	366.28	365.36	364.66	364.86	365.36	364.16
22.....	367.18	368.48	369.38	369.58	368.38	366.68	366.48	365.36	364.56	364.86	365.36	364.16
23.....	367.18	368.38	369.38	369.48	368.18	366.68	366.58	365.26	364.56	364.86	365.36	364.16
24.....	367.18	368.28	369.28	369.38	367.98	a	366.48	365.36	364.56	364.76	365.36	364.56
25.....	367.08	368.28	369.28	369.68	367.88	366.48	366.48	365.26	364.56	364.86	365.46	364.56
26.....	366.98	368.28	369.48	369.28	367.78	366.48	366.48	365.26	364.56	364.96	365.46	364.56
27.....	366.78	368.18	369.48	369.38	367.68	366.38	366.38	365.26	364.66	364.96	365.46	364.66
28.....	367.28	367.08	369.68	369.28	367.68	366.38	366.38	365.26	364.76	364.96	365.36	364.86
29.....	366.78	367.88	369.78	369.18	367.48	366.18	366.28	365.16	364.66	364.96	365.46	364.96
30.....	367.08	.....	369.88	369.08	367.48	365.88	366.18	365.16	364.76	364.96	365.56	365.06
31.....	366.88	.....	370.08	.....	367.38	.....	365.98	365.16	.....	364.76	.....	364.76

a No record.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1908, page 482.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT
CAUGHDENOT

1909	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	364.86	367.46	369.56	369.26	369.56	367.66	365.86	364.66	364.16	363.66	365.26	364.56
2.....	364.96	367.26	369.46	369.26	369.56	367.66	365.66	364.66	363.76	363.46	365.16	364.66
3.....	364.96	367.16	369.46	369.36	369.66	367.46	365.46	364.56	364.16	363.26	365.16	364.76
4.....	365.06	367.06	369.16	369.26	369.76	367.46	365.36	364.46	364.16	*364.20	365.06	364.66
5.....	365.26	366.96	368.96	369.36	369.66	367.76	365.36	364.66	363.96	364.16	364.86	364.66
6.....	365.86	367.36	369.06	369.46	369.66	367.66	365.36	364.46	364.36	364.46	364.76	364.26
7.....	365.86	367.16	368.96	369.56	369.66	367.86	365.36	364.16	364.26	364.16	365.06	365.16
8.....	365.66	367.16	368.76	369.76	369.56	367.86	365.26	364.16	364.16	364.06	365.06	364.26
9.....	365.56	367.26	368.76	369.96	369.56	367.86	365.26	364.26	364.26	364.06	365.06	364.06
10.....	365.76	367.76	368.66	370.06	369.56	367.86	365.26	363.96	a	364.76	365.26	364.26
11.....	366.06	367.26	368.46	370.06	369.56	367.66	365.26	364.16	364.56	364.86	365.16	364.26
12.....	366.06	367.26	368.66	370.16	369.76	367.66	365.26	364.26	364.26	364.56	365.06	364.66
13.....	366.16	367.16	368.66	370.26	369.86	367.56	365.06	364.26	364.56	363.96	365.16	365.16
14.....	366.26	367.16	a	370.26	369.76	367.46	364.76	364.16	364.66	363.96	365.16	364.56
15.....	366.06	367.06	368.56	370.46	369.56	367.26	364.76	364.26	364.76	364.16	365.26	364.46
16.....	366.06	367.26	368.56	370.66	369.66	367.16	364.96	364.66	364.56	363.66	365.06	354.56
17.....	366.26	367.16	368.46	370.46	369.46	367.06	364.76	365.36	364.26	363.56	364.66	364.56
18.....	366.06	367.16	368.26	370.36	369.36	366.86	364.46	364.56	364.26	364.26	364.26	364.66
19.....	366.16	367.26	368.16	370.26	369.26	366.76	364.16	364.26	364.26	364.06	364.16	364.56
20.....	366.06	367.26	368.06	369.96	369.16	366.76	364.66	364.26	364.76	364.76	364.16	364.76

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT
CAUGHDENY — Continued

1909	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	366.06	367.56	367.98	370.16	369.16	366.76	364.16	364.16	364.66	365.36	364.16	364.66
22	365.96	367.86	367.96	369.86	368.96	366.76	364.46	364.26	364.86	364.66	364.76	364.66
23	366.16	368.06	367.96	369.76	368.66	366.66	364.86	364.26	364.46	364.96	364.06	364.66
24	366.56	368.76	367.96	369.56	368.46	366.66	364.06	364.26	363.96	364.76	364.26	364.66
25	366.66	368.66	368.56	369.76	368.26	366.56	363.86	364.36	363.86	365.06	364.26	364.66
26	366.76	369.16	368.36	369.46	368.26	366.46	364.46	364.46	363.96	365.16	364.36	364.66
27	366.96	369.46	368.76	369.46	368.16	366.36	364.76	364.26	363.96	364.96	364.66	364.76
28	366.96	369.66	368.96	368.86	368.06	366.26	364.56	364.36	363.86	364.96	364.66	364.66
29	367.06	369.96	369.16	367.86	366.16	364.56	364.56	363.96	363.96	364.86	364.26	364.66
30	367.36	369.06	370.06	367.76	366.06	364.56	364.16	363.86	363.86	365.06	364.56	364.66
31	367.26	369.06	369.06	367.76	366.06	364.26	364.16	363.86	363.86	365.26	364.26	364.66

a No record. * Incorrectly published as 363.03, instead of 364.03, in Report of State Engineer and Surveyor for 1909, page 382.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1909, page 382.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW LOCK AT
CAUGHDENY

1910	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	364.71	365.81	366.41	368.31	366.01	365.61	365.01	364.91	365.01	364.31	364.51	365.81
2	364.71	365.81	367.21	368.21	366.61	365.61	365.01	364.91	365.01	364.51	364.41	365.81
3	364.71	365.81	367.81	368.31	365.91	365.51	364.91	364.71	365.11	364.61	364.41	365.81
4	364.71	365.81	368.26	368.31	366.81	365.61	364.91	364.61	365.31	364.91	364.31	365.81
5	364.71	365.71	368.61	368.11	366.81	365.71	364.91	364.31	365.31	365.01	364.51	365.81
6	364.71	365.81	369.01	368.11	365.91	365.61	364.91	363.81	365.41	365.31	364.51	365.81
7	364.91	365.81	369.56	367.81	365.71	365.61	364.81	364.11	365.51	364.91	365.01	365.81
8	364.81	365.81	369.61	367.71	365.91	365.71	364.81	364.51	365.61	365.11	364.81	365.81
9	364.81	365.81	369.76	367.61	365.71	365.81	364.61	364.71	365.61	365.01	364.71	365.71
10	364.81	365.81	369.76	367.41	365.61	365.91	364.31	365.01	365.61	365.01	364.81	365.61
11	364.91	365.81	369.71	367.51	365.51	366.01	364.31	365.11	365.61	364.91	364.81	365.61
12	364.91	365.81	369.66	367.21	365.51	365.81	364.31	365.11	365.51	364.81	364.71	365.61
13	364.91	365.81	369.51	367.11	365.61	366.71	364.51	365.21	365.41	364.71	364.71	365.61
14	364.91	365.41	369.31	367.11	365.51	365.71	364.51	365.31	365.31	364.71	364.71	365.41
15	364.91	365.41	369.21	367.21	365.51	365.61	364.71	365.31	365.01	364.71	364.71	365.41
16	364.91	365.41	369.01	367.21	365.31	365.61	365.31	365.11	365.01	364.61	364.61	365.41
17	364.91	365.41	368.71	367.51	365.41	365.61	365.31	365.01	365.01	364.51	364.61	365.41
18	365.01	365.41	368.61	367.11	365.51	365.61	365.21	365.21	365.01	364.61	364.31	365.31
19	365.11	365.41	368.41	366.71	365.61	365.61	365.21	365.01	364.91	364.61	364.61	365.21
20	365.11	365.41	368.31	366.61	365.61	365.51	365.21	365.11	364.81	364.61	365.61	365.11
21	365.11	365.51	368.31	366.61	365.31	365.31	365.11	365.11	364.71	364.51	365.71	365.11
22	365.61	365.51	368.21	366.61	365.31	365.31	364.51	365.11	364.71	364.41	365.81	365.11
23	365.51	365.51	368.21	366.61	365.31	365.31	364.51	365.11	364.71	364.01	365.91	365.01
24	365.71	365.51	368.21	366.61	365.61	365.11	364.71	365.11	365.31	364.51	365.81	365.11
25	365.71	365.51	368.11	366.61	365.71	365.11	364.71	365.11	364.71	364.11	365.91	365.11
26	365.81	365.51	368.11	366.61	365.91	365.31	364.51	365.01	364.71	364.41	365.81	365.21
27	365.91	365.51	368.41	366.21	365.71	365.21	364.71	365.11	364.91	364.21	365.81	365.21
28	365.91	365.71	368.31	366.11	365.71	365.11	365.21	365.11	364.81	364.11	366.01	365.61
29	365.81	365.51	368.51	365.91	365.81	365.01	365.01	365.11	364.81	364.21	365.91	365.61
30	365.81	365.51	368.41	365.61	365.71	365.01	364.71	365.11	364.91	364.31	365.81	365.61
31	365.81	365.51	368.31	365.61	365.61	365.01	364.91	365.11	364.41	364.41	365.81	365.61

a Incorrectly published as 368.68, instead of 364.68, in Report of State Engineer and Surveyor for 1910, page 366.

NOTE.—Supersedes table published in Report of State Engineer and Surveyor for 1910, page 366.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENNY

1911	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	365.68	366.08	365.43	367.98	368.43	365.53	365.56	365.06	365.06	365.46	365.96	367.66
2	365.53	365.93	365.53	368.08	368.33	365.53	365.56	365.06	364.86	365.36	365.86	367.56
3	365.73	366.03	365.43	368.08	368.23	a	365.56	364.96	364.86	365.36	365.96	367.56
4	365.63	366.03	365.53	368.12	368.03	a	365.56	364.86	364.96	365.36	365.96	367.56
5	366.23	365.93	365.53	368.12	368.03	a	365.56	364.86	365.06	365.36	365.96	367.66
6	367.23	365.93	365.53	368.33	367.93	a	365.46	364.96	365.06	365.56	365.96	367.66
7	367.33	365.53	365.53	368.73	367.93	365.86	365.46	364.96	365.16	365.66	366.06	367.56
8	367.43	365.93	365.53	369.03	367.83	365.46	365.46	364.96	365.46	365.66	365.96	367.56
9	367.63	365.53	365.53	369.63	367.63	365.46	365.26	364.86	365.56	365.76	366.26	367.56
10	367.63	365.73	365.63	369.83	367.43	365.46	365.26	364.76	365.46	365.76	366.16	367.66
11	366.13	365.73	365.73	369.83	367.23	365.56	365.26	364.66	365.36	365.76	366.16	367.66
12	366.13	365.73	365.73	369.73	367.13	365.56	365.26	364.56	365.36	365.66	366.26	367.76
13	366.23	365.73	365.93	369.63	367.03	365.46	365.16	364.46	365.46	365.76	366.16	367.96
14	366.23	365.73	366.03	369.73	366.73	365.36	365.16	364.36	365.56	365.76	367.16	367.86
15	366.23	365.73	366.03	369.73	366.63	365.16	365.16	364.16	365.66	365.66	366.96	367.86
16	366.23	365.63	366.53	369.73	366.53	365.26	365.06	364.06	365.66	365.86	*366.96	368.26
17	366.23	365.63	366.93	369.73	366.53	365.36	365.06	363.96	365.66	365.76	367.06	368.46
18	366.23	365.63	366.63	369.83	366.33	365.36	365.06	363.96	365.56	365.76	367.16	368.36
19	366.13	365.43	366.33	369.73	366.43	365.26	365.26	363.96	365.46	365.86	367.06	368.56
20	366.13	365.43	366.33	369.63	366.33	365.26	365.26	363.96	365.56	365.86	367.26	368.56
21	365.93	365.53	366.03	369.63	366.23	365.46	365.26	363.96	365.46	365.96	367.46	368.46
22	365.83	365.43	366.03	369.53	366.13	365.56	365.26	363.86	365.46	365.96	367.46	368.16
23	365.83	365.43	366.06	369.33	366.03	365.66	365.36	363.86	365.46	365.86	367.56	368.46
24	365.93	365.43	366.13	369.23	365.83	365.56	365.36	363.86	365.46	365.76	367.56	368.56
25	365.83	365.43	366.23	369.23	365.83	365.56	365.36	363.76	365.56	365.96	367.56	368.56
26	365.73	365.43	366.33	369.13	365.73	365.56	365.46	363.86	365.56	365.96	367.56	368.66
27	365.83	365.43	366.83	368.93	365.73	365.66	365.46	363.76	365.56	365.96	367.66	369.36
28	366.03	366.43	367.23	368.63	365.63	365.36	365.36	364.36	365.46	365.96	367.66	369.56
29	366.03	.....	367.73	368.53	365.63	365.26	365.26	364.26	365.36	365.96	367.56	369.66
30	366.03	.....	367.83	368.43	365.63	365.26	365.16	365.06	365.36	365.96	367.66	369.66
31	365.83	.....	367.83	.....	365.83	.....	365.16	365.36	.....	365.96	.....	369.96

a No record. a Incorrectly published as 367.93, instead of 333.93, in Report of State Engineer and Surveyor for 1914, Vol. II, page 122.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENNY

1912	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	369.76	367.06	366.86	369.86	370.66	368.56	365.76	365.16	366.16	368.66	367.46	368.86
2	369.56	366.86	367.81	371.36	370.46	368.36	365.76	365.26	366.26	368.46	367.86	368.66
3	368.86	366.56	367.81	371.46	370.26	368.36	365.76	365.36	366.36	368.36	367.76	368.86
4	368.76	366.56	366.86	371.46	370.16	368.36	365.66	365.46	366.26	368.26	367.86	369.06
5	368.46	366.61	366.86	371.66	369.96	368.16	365.66	365.46	366.26	368.16	367.66	369.26
6	368.76	366.56	366.86	371.76	369.66	367.96	365.56	365.55	366.36	368.06	367.56	369.16
7	368.76	366.46	366.86	372.06	369.36	367.66	365.55	365.55	366.36	368.06	367.66	369.26
8	368.96	366.46	366.86	372.36	369.06	367.56	365.56	365.66	366.36	367.96	367.76	369.16
9	368.56	366.51	366.86	372.46	368.66	367.46	365.46	365.76	366.36	367.86	367.86	369.26
10	368.46	366.51	366.86	372.66	368.56	367.36	366.26	365.76	366.36	367.66	367.66	369.46
11	368.46	366.51	366.86	372.76	368.56	367.26	366.26	365.76	366.46	367.66	367.96	369.46
12	368.36	366.51	367.01	372.66	368.56	367.03	366.16	365.86	366.46	367.56	368.06	369.16
13	368.26	366.51	367.01	372.56	368.56	366.76	366.06	365.86	366.46	367.46	368.16	369.36
14	368.06	366.51	367.06	372.46	368.46	366.86	366.06	365.96	366.46	367.36	368.16	369.26
15	367.76	366.51	367.11	372.36	368.46	366.76	366.16	365.96	366.55	367.16	368.16	369.16

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT
CAUGHDENOT — *Continued*

1912	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	367.76	366.51	367.21	372.36	368.66	366.66	366.06	366.06	366.86	367.36	368.26	369.16
17	367.86	366.66	367.66	372.46	368.56	366.66	365.96	366.06	367.06	367.26	368.26	369.06
18	368.26	366.66	367.91	372.56	368.36	366.56	365.86	366.16	367.06	367.16	368.26	368.96
19	367.86	366.61	368.26	372.66	368.26	366.56	365.86	366.16	367.06	367.06	368.36	368.76
20	367.16	366.61	368.31	372.46	368.36	366.46	365.56	366.16	367.16	367.16	368.36	368.76
21	367.26	366.66	368.46	372.26	368.56	366.36	365.46	366.26	367.16	367.46	368.26	368.86
22	367.31	366.76	368.66	372.16	368.66	366.26	365.56	366.16	367.16	367.36	368.26	369.06
23	367.26	366.76	368.86	372.06	368.46	366.26	365.46	366.06	367.26	367.36	368.26	369.06
24	367.26	366.66	368.86	371.96	368.66	366.16	365.36	366.06	367.66	367.46	368.36	369.06
25	367.06	366.66	368.91	371.86	368.66	366.16	365.26	366.06	368.06	367.66	368.36	369.06
26	366.96	366.76	368.66	371.76	368.46	366.06	365.16	365.96	368.66	367.76	368.36	368.96
27	366.96	366.76	368.56	371.56	368.36	366.06	365.16	365.96	368.76	367.86	368.26	368.96
28	366.86	366.76	368.46	371.26	368.46	365.96	365.16	365.96	368.86	368.06	368.36	368.76
29	366.96	366.76	368.76	371.16	368.46	365.96	365.16	366.06	368.86	367.96	368.36	368.76
30	367.16	366.96	368.96	371.06	368.56	365.86	365.16	366.06	368.76	367.86	368.46	368.86
31	367.16	366.96	369.36	368.66	368.66	365.86	365.16	366.06	368.86	367.86	368.46	368.86

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT
CAUGHDENOT

1913	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	369.06	371.26	367.96	371.56	367.96	366.56	363.86	363.80	363.85	363.91	363.76	364.46
2	369.16	371.06	367.86	371.36	367.76	366.46	363.86	363.82	363.84	363.93	363.86	364.36
3	369.26	371.06	367.96	371.56	367.66	366.36	363.86	363.82	363.83	363.95	363.96	364.26
4	368.96	370.86	367.86	371.36	367.66	366.26	363.96	363.82	363.84	363.93	363.76	364.26
5	369.16	370.66	367.76	371.16	367.56	366.26	363.86	363.81	363.85	363.93	363.86	364.16
6	369.26	370.66	367.66	371.16	367.36	366.16	363.66	363.80	363.86	363.86	363.86	364.16
7	369.46	370.76	367.66	371.26	367.26	366.16	363.66	363.81	363.86	363.86	363.86	364.46
8	370.06	370.86	367.56	370.76	367.06	366.06	364.66	363.82	363.84	363.93	363.96	364.26
9	370.36	370.56	367.66	370.66	366.76	365.96	364.66	363.82	363.83	363.86	363.86	364.56
10	370.66	370.36	367.76	370.76	366.56	365.86	363.86	363.81	363.82	363.96	363.76	364.66
11	370.86	370.16	367.86	371.06	366.46	365.76	363.86	363.81	363.83	363.96	363.96	364.66
12	370.86	369.86	368.06	370.56	366.46	365.76	363.76	363.82	363.81	363.86	363.96	364.56
13	370.96	369.46	368.16	370.36	366.36	365.86	364.66	363.82	363.81	363.86	364.16	364.56
14	371.06	369.16	368.36	370.26	366.36	365.76	363.86	363.82	363.80	363.76	364.16	364.56
15	371.06	368.76	368.56	370.16	366.46	365.66	363.86	363.83	363.79	363.76	364.26	364.46
16	370.96	368.66	368.86	369.86	366.36	365.70	363.86	363.83	363.80	363.76	364.26	364.46
17	371.26	368.56	369.06	369.76	366.26	365.66	363.86	363.82	363.81	363.75	364.36	364.46
18	371.46	368.26	369.36	369.56	366.16	365.26	363.96	363.81	363.82	363.76	364.26	364.36
19	371.16	368.16	369.66	369.26	366.06	365.16	363.96	363.80	363.82	363.86	364.36	364.46
20	371.26	368.16	369.76	368.96	366.06	365.86	363.96	363.80	363.83	363.86	364.36	364.46
21	371.26	368.16	369.86	369.16	366.36	364.36	363.86	363.81	363.83	363.76	364.46	364.46
22	371.36	368.26	369.86	369.06	365.96	364.06	363.96	363.80	363.83	363.73	364.46	364.36
23	371.46	368.26	369.96	368.96	366.06	363.96	363.96	363.81	363.82	363.68	364.36	364.76
24	371.66	368.16	370.06	368.76	365.96	363.86	364.06	363.81	363.82	363.68	364.56	364.36
25	371.56	368.16	370.16	367.66	365.96	363.86	364.15	363.82	363.84	363.68	364.46	364.46
26	371.46	368.06	370.66	368.56	366.06	363.96	364.16	363.83	363.86	363.66	364.46	364.56
27	371.16	367.96	371.56	368.56	366.26	363.96	364.26	363.83	363.84	364.15	364.56	364.96
28	371.16	367.96	371.66	368.46	366.56	363.86	364.36	363.83	363.86	364.25	364.76	364.76
29	371.26	367.96	371.06	368.36	366.56	363.96	364.46	363.84	363.88	364.06	364.46	364.66
30	371.16	367.96	372.46	368.16	366.46	363.86	364.56	363.84	363.89	363.96	364.56	364.46
31	371.16	367.96	372.26	368.46	366.46	363.86	364.66	363.85	363.88	363.88	364.56	364.36

* Incorrectly published as 363.66, instead of 364.66, in Report of State Engineer and Surveyor for 1914, Vol. 11, page 123.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENOT

1914	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1....	364.46	365.36	364.56	370.16	368.26	365.06	364.26	363.46	364.96	364.26	363.86	364.46
2....	364.36	365.46	364.66	370.51	368.16	364.96	364.16	363.56	364.96	364.16	363.96	364.56
3....	364.26	365.56	364.56	370.66	367.96	364.86	364.26	363.56	365.06	364.06	364.06	364.56
4....	364.26	365.76	364.36	370.56	367.56	364.96	364.26	363.46	365.06	363.96	364.06	364.66
5....	364.26	365.76	364.16	370.41	367.66	364.86	364.26	363.56	365.16	364.06	363.96	364.06
6....	364.26	365.76	364.06	370.21	367.56	364.86	364.26	363.56	365.26	363.96	363.96	364.16
7....	364.16	365.66	363.96	370.31	367.36	364.76	364.16	363.46	365.16	363.96	363.96	364.06
8....	364.16	365.66	364.06	370.41	367.36	364.96	364.16	363.46	365.06	363.86	364.06	364.06
9....	364.06	365.86	364.06	370.56	367.26	365.16	364.16	363.36	365.46	363.86	364.16	364.06
10....	363.86	365.46	364.06	370.56	367.26	364.96	364.16	363.36	365.06	363.76	364.06	363.96
11....	364.06	365.16	363.96	370.51	367.06	364.96	364.06	363.46	364.96	363.76	363.96	363.96
12....	364.06	365.16	363.96	370.46	367.06	364.86	364.06	363.36	364.96	363.86	363.96	363.86
13....	364.16	365.06	363.76	370.26	367.16	364.86	364.06	363.36	364.86	363.96	364.06	363.86
14....	364.16	365.06	363.76	370.16	367.06	364.86	364.16	363.36	364.86	364.06	363.96	363.86
15....	364.06	365.06	363.76	369.66	367.16	364.76	364.16	363.26	364.96	363.76	364.16	364.26
16....	364.06	365.06	363.56	369.56	367.06	364.66	364.16	363.26	364.86	363.76	364.36	364.36
17....	363.86	364.86	363.86	369.46	366.86	364.66	364.06	363.36	364.86	363.86	364.16	364.06
18....	363.86	364.76	363.76	369.31	366.56	364.56	364.16	363.36	364.76	363.86	364.26	363.96
19....	364.06	364.76	363.86	369.41	366.36	364.46	364.16	363.26	364.76	363.96	364.26	363.86
20....	363.96	364.56	364.06	369.46	366.26	364.36	364.06	363.26	364.66	363.86	364.16	363.96
21....	363.86	364.56	364.06	369.56	366.16	364.46	363.96	363.56	364.56	363.86	364.16	364.06
22....	363.86	364.56	364.16	369.46	365.96	364.36	363.96	363.46	364.46	363.96	364.06	363.96
23....	363.86	364.56	364.16	369.36	365.86	364.46	363.86	363.56	364.36	364.06	364.16	364.06
24....	363.76	364.56	364.06	369.26	365.76	364.36	363.86	363.76	364.26	364.06	364.16	364.06
25....	363.76	364.56	364.26	369.16	365.56	364.26	363.76	363.56	364.26	364.06	364.06	363.96
26....	363.86	364.66	365.06	369.36	365.46	364.16	363.86	364.06	364.16	364.06	364.06	364.06
27....	363.96	364.56	366.26	369.16	365.36	364.16	363.86	364.16	363.96	363.96	364.16	364.16
28....	363.96	364.56	367.46	369.06	365.26	364.46	363.76	364.26	363.96	363.86	364.16	364.16
29....	364.16	.....	365.36	368.56	365.36	364.36	363.66	364.56	364.16	363.76	364.36	363.96
30....	364.36	.....	369.26	368.56	364.96	364.16	363.66	364.86	364.16	364.56	364.36	363.96
31....	364.66	.....	369.66	.....	365.06	.....	363.56	364.96	.....	a	.....	363.96

a No record. b Incorrectly published as 364.36, instead of 364.96; c Incorrectly published as 364.96, instead of 363.96; d Incorrectly published as 365.96, instead of 365.96, in Report of State Engineer and Surveyor for 1914, Vol. II, page 124.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENOT

1915	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1....	364.46	365.96	368.06	365.06	365.16	364.16	364.06	364.46	364.26	364.6	364.7	364.9
2....	364.66	366.16	367.86	364.86	365.06	364.06	364.16	364.46	364.16	364.9	364.6	364.9
3....	364.76	366.76	367.76	364.76	365.16	363.96	364.26	364.96	364.16	364.7	364.4	364.8
4....	364.86	366.66	367.66	364.76	365.06	363.86	364.36	365.16	364.16	364.9	364.6	364.8
5....	364.76	366.46	367.56	364.86	364.96	363.86	364.46	364.86	364.16	364.9	364.6	364.8
6....	364.56	366.26	367.36	364.86	364.86	363.76	364.36	364.66	364.06	365.3	364.6	364.7
7....	364.76	366.06	367.16	364.86	364.96	363.86	364.46	364.56	364.06	365.3	364.6	364.7
8....	365.16	365.86	366.96	364.86	364.86	363.66	364.56	364.66	364.06	365.3	364.8	364.6
9....	365.36	365.56	366.76	364.96	364.76	363.66	364.66	364.76	364.16	364.1	364.5	364.5
10....	365.06	365.36	366.56	365.06	364.76	363.66	364.76	364.66	364.36	365.1	364.4	364.4
11....	365.26	365.36	366.46	365.16	364.66	363.66	364.86	364.66	364.36	365.0	364.7	364.6
12....	365.66	365.46	366.26	365.26	364.76	364.56	364.86	364.66	364.26	365.0	364.4	364.7
13....	365.56	365.56	366.16	365.46	364.66	363.66	364.76	364.56	364.46	365.0	364.2	364.7
14....	365.66	365.66	366.06	365.56	364.56	364.56	364.76	364.46	364.86	364.8	364.5	364.6
15....	365.56	365.96	366.06	365.66	364.46	363.66	364.86	364.56	365.16	364.9	364.4	364.7

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENOT — Continued

1915	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16. . . .	365.56	366.46	365.96	365.56	364.66	364.56	364.83	364.46	365.16	364.9	364.5	364.6
17. . . .	365.66	366.66	365.66	365.46	364.66	364.46	364.76	364.36	365.06	364.9	364.6	364.9
18. . . .	365.76	366.76	365.66	365.46	364.56	364.56	364.83	364.26	364.96	365.1	364.7	364.7
19. . . .	365.96	366.76	365.56	365.36	364.46	364.56	364.96	364.36	364.83	365.0	364.8	364.8
20. . . .	366.20	366.06	365.56	365.36	364.36	364.56	364.83	364.36	364.66	365.1	364.5	364.9
21. . . .	366.46	366.66	365.56	365.46	364.36	363.66	364.76	364.46	364.53	365.1	364.9	364.9
22. . . .	366.66	366.56	365.46	365.56	364.26	363.76	364.66	364.36	364.53	365.0	364.9	364.9
23. . . .	366.56	366.36	365.46	365.46	364.16	363.76	364.66	364.46	364.56	365.1	365.2	365.0
24. . . .	366.66	366.56	365.36	365.36	364.26	363.76	364.56	364.56	364.46	365.0	365.2	365.0
25. . . .	366.66	367.06	365.46	365.26	364.36	363.76	364.66	364.36	364.36	365.0	365.4	365.2
26. . . .	366.46	367.66	365.36	365.36	364.26	363.76	364.66	364.26	364.53	364.9	365.2	365.4
27. . . .	366.26	368.16	365.36	365.26	364.16	363.76	364.53	364.46	364.46	364.8	365.0	365.7
28. . . .	365.96	368.03	365.36	365.16	364.03	363.86	364.56	364.46	364.53	364.8	365.0	365.8
29. . . .	365.96	.....	365.26	365.36	363.96	363.86	364.43	364.36	364.46	364.7	364.9	366.0
30. . . .	366.16	.....	365.26	365.26	364.03	364.06	364.36	364.36	364.46	364.6	364.8	365.9
31. . . .	366.06	.....	365.16	.....	364.16	.....	364.36	364.26	.....	364.7	.....	365.8

* Incorrectly published as 364.56, instead of 364.43, in Report of State Engineer and Surveyor for 1915, Vol. II, page 128.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENOT

1916	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1. . . .	365.9	367.2	365.9	368.3	367.3	366.2	365.4	364.2	363.3	363.9	363.8	364.5
2. . . .	365.9	367.2	365.7	369.3	367.2	366.3	365.3	364.2	363.2	366.9	363.9	364.5
3. . . .	366.2	367.0	365.7	369.9	367.2	366.1	365.3	364.0	363.3	363.9	363.7	364.8
4. . . .	366.7	367.1	365.5	370.2	367.1	366.1	365.2	364.0	363.3	364.0	363.8	364.8
5. . . .	366.8	366.9	365.6	370.2	366.9	366.1	365.2	363.9	363.2	364.0	363.8	364.9
6. . . .	367.2	366.8	365.6	370.2	366.7	366.2	365.1	364.0	363.3	364.0	364.0	364.6
7. . . .	367.5	366.6	365.9	370.1	366.6	366.6	365.1	364.0	363.2	364.2	364.0	364.8
8. . . .	367.5	366.6	365.6	370.0	366.3	366.1	365.1	363.9	363.2	364.2	364.0	365.1
9. . . .	367.5	366.6	365.5	369.8	365.5	366.0	365.1	363.9	363.1	364.2	363.9	364.9
10. . . .	367.4	366.4	365.4	369.6	365.6	365.9	364.7	364.0	363.1	364.2	363.9	364.9
11. . . .	366.9	366.3	365.3	369.4	365.4	365.7	364.7	363.9	363.2	364.3	363.9	365.2
12. . . .	366.7	366.2	365.5	369.2	365.4	365.6	364.6	363.7	363.2	364.3	364.0	365.1
13. . . .	366.7	366.1	365.4	369.1	365.4	365.6	364.8	363.8	363.2	364.3	363.8	365.0
14. . . .	366.8	366.0	365.3	369.2	365.5	365.5	364.8	363.8	363.1	364.1	363.9	364.9
15. . . .	366.6	365.9	365.2	368.9	365.4	365.7	364.7	363.8	363.2	364.1	364.0	364.7
16. . . .	366.7	365.8	365.7	368.7	365.5	365.9	364.7	363.7	363.3	364.0	364.0	364.5
17. . . .	367.1	365.7	365.3	368.6	366.2	365.8	364.8	363.7	363.3	364.0	364.0	364.5
18. . . .	367.8	365.6	365.4	368.2	366.6	365.8	364.7	364.0	363.4	364.0	364.0	364.4
19. . . .	368.0	365.9	365.3	368.1	367.2	366.1	364.7	364.0	363.36	364.7	364.0	364.5
20. . . .	367.5	365.8	365.3	368.0	367.2	366.0	364.7	363.8	363.35	364.1	363.8	364.7
21. . . .	366.4	365.8	365.2	368.0	367.2	366.1	364.6	363.7	363.4	364.0	363.9	364.75
22. . . .	366.2	365.6	365.1	368.0	367.1	366.1	364.5	363.6	363.3	364.1	364.1	364.8
23. . . .	366.1	365.5	365.0	367.9	367.3	366.0	364.5	363.5	363.2	364.0	364.0	365.0
24. . . .	366.2	365.4	364.9	367.8	367.7	366.1	364.45	363.5	363.2	364.0	363.9	364.8
25. . . .	366.2	365.3	364.8	367.9	367.4	366.1	364.5	363.5	363.3	364.0	364.1	364.6
26. . . .	366.2	365.4	364.9	367.8	367.2	365.8	364.4	363.6	363.6	363.8	364.2	364.7
27. . . .	366.3	365.5	364.8	367.7	367.1	365.7	364.3	363.6	363.6	363.9	364.3	364.7
28. . . .	367.1	366.0	364.8	367.6	367.0	365.5	364.3	363.5	363.8	363.8	364.2	364.6
29. . . .	367.1	366.0	365.0	367.6	367.7	365.5	364.35	363.4	363.7	363.9	364.2	364.7
30. . . .	367.2	.....	366.0	367.4	368.3	365.5	364.2	363.3	363.9	363.8	364.3	364.6
31. . . .	367.1	.....	367.3	.....	366.2	.....	364.0	363.3	.....	363.8	.....	364.5

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER BELOW DAM AT CAUGHDENY, for the year ended June 30, 1917. Mrs. J. R. Hiller, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	365.4	364.2	363.3	363.9	363.8	364.5	364.5	364.8	364.3	367.7	366.1	365.4
2	365.3	364.2	363.2	363.9	363.9	364.5	364.5	365.2	364.3	367.8	365.8	365.3
3	365.3	364.0	363.3	363.9	363.7	364.8	364.5	366.0	364.3	367.9	365.7	365.1
4	365.2	364.0	363.3	364.0	363.8	364.8	364.5	365.8	364.3	368.3	365.8	365.2
5	365.2	363.9	363.2	364.0	363.8	364.9	364.6	365.2	364.1	368.5	365.9	365.0
6	365.1	364.0	363.3	364.0	364.0	364.6	364.7	365.1	364.5	368.7	365.9	365.2
7	365.1	364.0	363.2	364.2	364.0	364.8	365.65	365.0	364.4	368.0	365.9	365.3
8	365.1	363.9	363.2	364.2	364.0	365.1	364.9	364.8	364.2	368.4	365.8	365.5
9	365.1	363.8	363.1	364.2	363.9	364.9	364.8	364.6	364.0	368.3	365.7	365.5
10	364.7	364.0	363.1	364.2	363.9	364.9	364.9	365.3	363.9	368.0	365.5	365.6
11	364.7	363.9	363.2	364.3	363.9	365.2	365.5	364.9	364.0	368.0	365.5	365.6
12	364.6	363.7	363.2	364.3	364.0	365.1	365.0	364.6	364.2	367.8	365.4	365.9
13	364.8	363.5	363.2	364.3	363.8	365.0	364.8	364.6	364.3	367.5	365.4	366.0
14	364.8	363.8	363.1	364.1	363.9	364.9	364.9	364.2	364.5	367.3	365.8	366.0
15	364.7	363.8	363.2	364.1	364.0	364.7	364.9	364.0	364.5	367.2	365.2	366.0
16	364.7	363.7	363.3	364.0	364.0	364.5	364.8	363.9	364.6	366.9	365.2	365.9
17	364.8	363.7	363.3	364.0	364.0	364.5	364.8	363.7	364.7	366.9	365.1	365.7
18	364.7	364.0	363.4	364.0	364.0	364.4	364.8	363.7	364.7	366.8	365.1	365.5
19	364.7	364.0	363.35	364.7	364.0	364.5	364.9	363.8	364.0	366.7	365.0	365.5
20	364.7	363.8	363.35	364.1	363.8	364.7	364.9	364.0	364.7	366.7	364.9	365.5
21	364.6	363.7	363.4	364.0	363.9	364.75	364.9	364.0	364.2	366.7	364.9	365.5
22	364.5	363.6	363.3	364.1	364.1	364.8	364.9	364.1	364.5	366.7	365.5	365.4
23	364.5	363.5	363.2	364.0	364.0	365.0	364.9	364.3	364.9	366.6	365.1	365.3
24	364.45	363.5	363.2	364.0	363.9	364.8	364.8	364.2	364.8	366.55	364.8	365.2
25	364.5	363.5	363.3	364.0	364.1	364.6	364.7	364.2	366.2	366.6	364.7	365.1
26	364.4	363.6	363.6	363.8	364.2	364.7	364.6	364.2	366.5	366.5	364.6	365.4
27	364.3	363.6	363.8	363.9	364.3	364.7	364.5	364.3	366.8	366.5	364.7	365.3
28	364.3	363.5	363.8	363.8	364.2	364.6	364.5	364.3	367.0	366.3	364.8	365.4
29	364.35	363.4	363.7	363.9	364.2	364.7	364.5	.....	367.5	366.2	365.0	365.6
30	364.2	363.3	363.9	363.8	364.3	364.6	364.4	.....	367.7	366.1	365.3	365.4
31	364.0	363.3	.....	363.8	.....	364.5	364.8	.....	367.7	.....	365.4	.....

Daily discharge, in second-feet, of ONEIDA RIVER AT CAUGHDENY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	3,560	776	327	646	549	1,430	1,790	3,180	2,580	6,580	4,730	3,890
2	3,670	871	327	603	680	1,330	1,700	3,150	2,770	6,940	4,320	3,750
3	3,440	778	327	721	687	1,880	1,790	3,080	2,770	6,910	4,320	3,760
4	3,300	780	343	808	804	1,850	1,790	3,120	2,780	7,380	4,320	3,760
5	3,290	781	327	640	807	1,830	1,900	2,920	2,790	7,780	4,760	3,770
6	3,140	704	463	1,060	865	1,420	1,790	2,940	2,770	7,760	4,440	3,620
7	3,140	696	325	1,400	797	2,060	1,890	3,150	2,870	6,890	4,440	3,620
8	2,350	615	827	1,400	865	2,290	2,130	2,840	2,790	7,190	4,320	3,620
9	2,330	610	321	1,700	737	2,060	2,120	2,960	2,700	7,010	4,320	3,750
10	1,620	966	339	1,560	740	2,220	2,130	2,950	2,800	6,500	4,030	3,750
11	1,520	779	333	1,550	865	2,870	2,250	2,910	2,780	6,890	4,030	3,860
12	1,620	618	392	1,440	1,020	2,500	2,250	2,950	2,770	6,250	4,040	4,290
13	1,730	792	459	768	869	2,500	2,010	2,950	2,880	5,670	4,040	4,580
14	1,670	325	322	656	965	2,400	2,250	2,960	2,870	5,780	3,900	4,280
15	2,140	533	387	776	1,280	2,300	2,010	1,010	3,080	5,610	3,900	4,280
16	2,150	616	326	778	799	2,210	2,140	1,010	3,190	5,450	3,910	4,290
17	2,140	392	335	444	1,080	2,090	2,130	1,010	3,180	5,450	3,760	4,020
18	2,010	325	390	780	798	2,330	2,130	855	3,410	5,310	3,760	4,180
19	1,670	326	329	1,820	796	1,980	2,140	1,330	3,410	5,220	3,640	4,180
20	1,880	468	324	774	793	2,090	2,140	1,500	3,430	5,160	3,500	4,030

Daily discharge, in second-feet, of ONEIDA RIVER AT CAUGHDENOT, for the year ended June 30, 1917 — *Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	1,360	390	391	780	1,160	2,210	2,020	1,500	3,440	5,160	3,500	4,030
22.....	1,360	535	461	781	1,160	2,210	2,020	1,480	3,430	5,160	3,890	4,030
23.....	1,260	615	464	913	1,190	2,080	2,020	1,900	3,640	5,180	3,220	3,900
24.....	1,150	465	271	915	543	1,860	2,020	2,410	3,830	5,010	3,240	3,640
25.....	1,150	324	113	780	673	1,860	2,030	2,410	4,360	5,230	3,250	3,640
26.....	1,260	459	322	566	1,400	1,860	1,910	2,410	4,670	5,020	3,250	3,750
27.....	953	467	455	917	1,350	1,860	1,910	2,420	5,150	4,840	3,520	2,470
28.....	1,140	459	322	570	1,200	1,750	1,910	2,580	5,450	4,700	3,650	3,630
29.....	1,060	330	25	781	1,160	1,860	2,020	.....	6,120	4,760	3,640	3,720
30.....	964	325	613	782	1,250	1,750	2,750	.....	6,120	4,710	3,760	3,470
31.....	604	323	.....	720	.....	1,640	3,430	.....	6,280	.....	3,760	.....
Mean....	1,994	563	349	936	929	2,019	2,084	2,321	3,587	5,917	3,908	3,885

Monthly discharge of ONEIDA RIVER AT CAUGHDENOT, for the year ended June 30, 1917

[Drainage area, 1,377 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	3,570	604	1,994	1.45	1.67
August.....	966	322	563	0.410	0.47
September.....	613	25	349	0.253	0.28
October.....	1,820	444	936	0.680	0.78
November.....	1,400	543	929	0.675	0.75
December.....	2,870	1,330	2,019	1.47	1.69
January.....	3,430	1,790	2,084	1.51	1.74
February.....	3,180	855	2,321	1.69	1.76
March.....	6,280	2,580	3,587	2.60	3.00
April.....	7,780	4,700	5,917	4.30	4.80
May.....	4,760	3,220	3,908	2.84	3.27
June.....	4,580	3,470	3,885	2.82	3.15
The year.....	7,780	25	2,371	1.72	23.36

ONEIDA RIVER AT OAK ORCHARD

This station is located on the Oak Orchard highway bridge, also known as Schroepfel's bridge, across the Oneida river at Oak Orchard, about seven and five-eighths miles upstream from the junction of the Oneida and Seneca rivers. It was established April 23, 1904, just below the old lock at the Oak Orchard dam and then indicated water-surface below the dam. August 1, 1915, the gage was moved to its present location on the lower

end of the south side of the old pier near the south, or left bank. The bridge is about $\frac{1}{3}$ mile below the site of the old dam, which has been removed in connection with the canalization of the Oneida river for the Barge canal. Previous to 1914 this record was published as "below dam."

On July 18, 1916, the staff gage was replaced by a standard Type A gage, No. 182, in the same location, having a range of 12 feet, between elevations 361.0 and 373.0. The gage benchmark is on the northeast corner of south abutment of Schroepfel's bridge and is at elevation 370.489 (B. C. datum).

The gage is read once daily—to tenths until December 1, since that date to quarter-tenths.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT OAK ORCHARD, for the year ended June 30, 1917. LaRue Sitterly, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	364.3	364.0	363.3	363.9	363.8	364.35	364.35	364.60	.....	365.60	364.48	364.48
2.....	364.3	363.9	363.3	363.9	363.8	364.45	364.35	364.60	.....	365.65	364.42	364.42
3.....	364.3	363.9	363.3	363.9	363.8	364.55	364.35	364.55	.....	365.70	364.45	364.30
4.....	364.2	363.8	363.3	363.9	363.8	364.52	364.35	364.45	364.10	365.85	364.48	364.35
5.....	364.2	363.8	363.2	363.9	363.9	364.45	364.38	364.42	364.15	365.95	364.55	364.35
6.....	364.2	363.7	363.2	363.9	363.9	364.42	364.40	364.42	364.20	366.25	364.70	364.38
7.....	364.2	363.8	363.2	363.9	363.9	364.45	364.55	364.40	364.15	366.25	364.60	364.45
8.....	364.2	363.7	363.2	364.0	363.8	364.45	364.58	364.40	364.12	366.20	364.52	364.55
9.....	364.2	363.8	363.2	364.0	363.8	364.48	364.60	.....	363.90	366.20	364.45	364.75
10.....	364.2	363.8	363.2	364.1	363.8	364.42	364.60	.....	363.80	366.10	364.35	364.68
11.....	364.2	363.7	363.2	364.1	363.8	364.45	364.55	.....	364.50	365.85	364.38	364.55
12.....	364.1	363.7	363.1	364.1	363.8	364.45	364.50	.....	364.30	365.70	364.40	364.90
13.....	364.1	363.7	363.1	364.1	363.8	364.40	364.50	.....	364.35	365.50	364.40	365.00
14.....	364.1	363.7	363.1	364.1	363.8	364.35	364.50	.....	364.40	365.35	364.40	364.95
15.....	364.0	363.7	363.1	364.1	363.8	364.32	364.48	.....	364.45	365.25	364.38	364.92
16.....	364.0	363.7	363.1	364.0	363.9	364.25	364.45	.....	364.35	365.15	364.35	364.90
17.....	364.0	363.7	363.1	364.0	363.9	364.20	364.42	.....	364.40	365.15	364.30	364.70
18.....	364.0	363.7	363.2	364.0	363.9	364.15	364.40	.....	364.48	365.15	364.30	364.55
19.....	364.0	363.7	363.2	364.0	363.9	364.12	364.40	.....	364.38	365.12	364.28	364.50
20.....	364.0	363.7	363.3	364.1	363.9	364.15	364.38	.....	364.25	365.20	364.28	364.48
21.....	364.0	363.7	363.3	364.0	363.9	364.20	364.35	.....	364.10	365.15	364.25	364.50
22.....	364.0	363.6	363.3	364.0	363.9	364.25	364.38	.....	364.20	365.05	364.30	364.50
23.....	364.0	363.5	363.3	364.0	363.9	364.40	364.30	.....	364.50	364.90	364.40	364.48
24.....	364.0	363.4	363.3	364.0	363.9	364.40	364.30	.....	365.30	364.75	364.30	364.45
25.....	364.0	363.3	363.4	363.9	363.9	364.40	364.25	.....	365.50	364.72	364.20	364.50
26.....	364.0	363.3	363.6	363.9	363.9	364.40	364.20	.....	365.50	364.70	364.22	364.58
27.....	364.0	363.3	363.6	363.8	364.0	364.40	364.18	.....	365.52	364.65	364.10	364.68
28.....	364.0	363.3	363.7	363.8	364.0	364.32	364.15	.....	365.60	364.60	364.15	364.70
29.....	364.0	363.4	363.8	363.7	364.1	364.32	364.10	.....	365.70	364.55	364.35	364.80
30.....	364.0	363.4	363.9	363.7	364.2	364.32	364.10	.....	365.60	364.50	364.40	364.90
31.....	364.0	363.4	.....	363.8	.....	364.30	364.25	.....	365.55	.....	364.50	.....

NOTE.—February 9 to March 3, inclusive, record doubtful; not published.

ONEIDA RIVER AT THREE RIVER POINT

This station, located at Three River Point, the junction of Seneca and Oneida rivers, which form the Oswego river, was established April 16, 1904. On July 17, 1916, the staff gage on the upstream end of the most northerly pier of the temporary tow-path bridge over Oneida river was superseded by a standard Type A gage, No. 181, in two sections. The lower section is secured to the south face of east end of boat landing of Three River dock, and has a range of 4 feet, between elevations 360.0 and 364.0. The upper section is secured to the west wing wall of south abutment of the highway bridge over Oneida river, and has a range of 8 feet, between elevations 364.0 and 372.0. A standard bench-mark plug is set in the face of the wall near the upper section at elevation 368.0 (B. C. datum).

The gage is read once daily.

Daily elevation of water-surface (B. C. datum) of ONEIDA RIVER AT THREE RIVER POINT, for the year ended June 30, 1917. John Chamberlain and Fred Chamberlain, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	364.3	364.1	363.5	363.9	363.8	364.1	.....	364.3	363.95	364.7	364.2	364.15
2	364.2	363.9	363.3	363.0	363.8	364.2	.....	364.2	363.9	364.0	364.1	364.1
3	364.1	363.9	363.3	363.9	363.8	364.3	.....	364.1	363.9	364.7	364.0	364.1
4	364.2	363.6	363.5	363.85	363.7	364.4	.....	364.1	363.75	364.85	364.1	364.0
5	363.9	363.6	363.2	363.9	363.8	364.3	.....	364.1	363.75	364.8	364.2	363.9
6	364.0	363.6	363.2	363.9	363.8	364.2	.....	364.15	363.0	364.05	364.3	364.0
7	364.0	363.9	363.2	364.1	363.8	364.0	.....	364.1	363.95	364.05	364.2	364.2
8	363.9	363.7	363.2	364.0	363.8	364.1	364.4	364.1	363.85	365.25	364.0	364.85
9	364.0	363.6	363.1	364.0	363.8	364.1	364.3	364.05	363.75	365.25	364.0	364.5
10	364.1	363.7	363.0	364.0	363.8	364.1	364.2	364.0	363.65	365.2	364.0	364.35
11	364.2	363.7	363.3	364.0	363.7	364.2	364.2	364.0	363.75	365.15	364.05	364.4
12	364.2	363.7	363.3	364.0	363.8	364.2	364.1	363.9	364.1	364.05	364.1	364.6
13	364.0	363.6	363.2	363.9	363.8	364.2	364.0	363.85	364.0	364.75	364.1	364.6
14	364.2	363.7	363.1	363.9	363.7	364.1	364.0	363.9	364.15	364.65	364.0	364.2
15	364.2	363.7	363.1	363.98	363.8	364.0	364.0	363.65	364.15	364.5	363.95	364.65
16	364.1	363.6	363.1	363.98	363.9	364.0	364.0	363.5	364.1	364.45	363.95	364.6
17	363.9	363.6	363.1	364.0	363.9	363.8	364.0	363.45	364.0	364.6	363.9	364.4
18	363.9	363.5	363.3	363.98	363.8	363.8	364.0	363.5	364.1	364.6	364.0	364.15
19	363.9	363.5	363.3	364.0	363.9	364.0	363.9	363.6	364.1	364.6	363.95	364.2
20	.....	363.5	363.4	363.9	363.8	364.0	363.9	363.7	363.9	364.7	364.0	364.2
21	.....	363.7	363.4	363.8	363.9	364.1	364.1	363.75	363.75	364.3	363.9	364.4
22	.....	363.6	363.3	364.0	364.0	364.2	364.1	363.75	363.9	364.6	364.2	364.3
23	.....	363.4	363.2	363.9	363.9	364.1	364.1	363.8	364.1	364.3	364.15	364.2
24	.....	363.5	363.2	363.9	363.8	364.0	364.05	363.95	364.65	364.0	363.9	364.2
25	.....	363.4	363.5	363.8	363.8	364.0	364.0	363.95	364.9	364.3	363.95	364.15
26	.....	363.3	363.0	363.8	364.0	364.0	363.95	363.95	364.95	364.3	363.9	364.4
27	.....	363.3	363.6	363.8	364.0	364.0	363.85	364.15	364.9	364.3	364.0	364.4
28	.....	363.5	363.7	363.8	364.0	364.0	363.85	364.2	364.9	364.2	363.9	364.6
29	.....	363.4	363.8	363.8	364.0	364.0	363.85	.....	364.9	364.25	364.1	364.65
30	.....	363.5	363.8	363.6	364.1	364.0	363.9	.....	364.9	364.1	364.2	364.7
31	363.9	363.4	.....	363.8	.....	364.0	364.1	.....	364.8	.....	.....	.....

NOTE.—Record, July 20 to 30, inclusive, and January 1 to 7, inclusive, doubtful; not published

ONEIDA LAKE

Oneida lake, with a water-surface of 78 square miles, is about $20\frac{3}{4}$ miles long and 4 to 5 miles wide the greater part of its length. Its depth varies from 20 to 50 feet, but there are several shoals. The total drainage area above its outlet is 1,353 square miles, of which the lake surface constitutes five and three-quarters per cent. The drainage basin within a radius of ten miles to the south and west is relatively flat, with numerous swampy tracts. The lake receives, through Chittenango and Oneida creeks, drainage from an extensive area of the central New York plateau and, through Wood and Fish creeks on the east, drainage from a portion of the west slope of the plateau bordering the Adirondack mountains. On the north the drainage area is less extensive and the inflowing streams are small.

The Barge canal traverses the length of the lake. A low navigable surface is maintained at elevation 369.9 by the Caughdenoy dam four miles down the Oneida river, a description of which is given under the Oneida river.

A chart of Oneida lake has been prepared in four colors at a scale of 1:40,000 by the War Department in connection with the survey of the northern and northwestern lakes, entitled, Chart No. 4, New York State Canals, from Lock 22 to Lock 23, including Oneida Lake, issued November 12, 1913, catalog number 184, price 15 cents.

For elevation of west end of Oneida lake see Oneida river at Brewerton.

The following table gives the elevations of extreme high and low-water surface each year of Oneida lake as indicated by gages at Brewerton at the west and Sylvan Beach at the east end of the lake. The gage at Brewerton is about 1,500 feet down the outlet, while that at Sylvan Beach is about 800 feet up Fish creek from the lake. The difference between extreme surface at each end of the lake is probably mainly due to wind, supplemented by such slight slope between the gage and lake as may occur during times of large flow.

Annual high and low water-surface elevation of ONEIDA LAKE

YEAR	BREWERTON			SYLVAN BEACH		
	SURFACE ELEVATION		Range	SURFACE ELEVATION		Range
	High	Low		High	Low	
1904.....	374.0	369.1	<i>Feet</i> 4.9	.....	.....	<i>Feet</i>
1905.....	374.9	369.9	5.0	375.4	370.5	4.9
1906.....	372.8	368.7	4.1	373.1	368.9	4.2
1907.....	372.9	369.1	3.8	373.1	369.2	3.9
1908.....	373.4	368.6	4.8	373.7	368.5	5.2
1909.....	374.5	370.0	4.5	374.5	369.8	4.7
1910.....	373.9	369.1	4.8	374.0	370.0	4.0
1911.....	374.2	370.2	4.0	374.3	369.7	4.6
1912.....	375.3	370.2	5.1	376.9	370.0	6.9
1913.....	375.3	369.6	5.7	377.0	369.3	7.7
1914.....	374.2	369.7	4.5	375.8	369.8	6.0
1915.....	372.5	369.5	3.0	372.4	369.5	2.9
1916.....	374.0	369.3	4.7	374.0	369.9	4.1

ONEIDA LAKE AT SYLVAN BEACH

This station, established July 1, 1904, is located at the east end of Oneida lake, at Sylvan Beach. A staff gage, attached to the corner of the crib dock on the right, or north bank of canalized Fish creek, just above, or east of Railroad street bridge and about 800 feet from the lake, was in use until May 31, 1917. On May 31, 1917, a standard Type A gage, No. 186, in two sections, was erected in practically the same location. The lower section has a range of 8 feet, between elevations 367.0 and 375.0. The upper section is secured to the north face of the north abutment of the Sylvan Beach bridge and has a range of 4 feet, between elevations 373.0 and 377.0. The gage benchmark is a wooden plug in top of north abutment, Sylvan Beach bridge, between piers, and is at elevation of 377.0 (B. C. datum).

The gage is read twice daily — at 9:00 A. M. and 2:00 P. M. — to tenths.

Daily elevation of water-surface (B. C. datum) of ONEIDA LAKE AT SYLVAN BEACH
for the year ended June 30, 1917. Wm. H. Dunn, Observer

DAT	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	371.5	370.6	370.1	370.1	370.2	370.6	370.7	369.6	370.4	373.2	372.5	371.6
2.....	371.4	370.6	370.1	370.1	370.2	370.8	370.8	369.8	370.4	373.4	372.6	371.6
3.....	371.3	370.5	370.0	370.0	370.0	370.9	370.8	370.0	370.5	373.8	372.5	371.6
4.....	371.3	370.4	370.0	370.1	370.0	371.1	370.8	370.2	370.5	373.9	371.9	371.6
5.....	371.2	370.4	370.0	370.1	370.0	371.1	370.7	370.6	370.5	373.7	371.9	371.5
6.....	371.1	370.4	370.0	370.1	370.1	371.5	370.7	370.7	370.5	373.9	371.9	371.4
7.....	371.0	370.4	370.0	370.1	370.0	371.5	370.6	370.6	370.5	374.2	371.9	371.5
8.....	371.0	370.4	370.0	370.0	370.0	371.3	370.6	370.6	370.6	374.0	371.9	371.5
9.....	371.0	370.4	370.0	370.0	370.0	371.3	370.6	370.5	370.6	373.8	371.9	371.4
10.....	370.6	370.4	370.0	370.0	370.1	371.4	370.5	370.5	370.6	373.4	371.9	371.6
11.....	370.6	370.3	370.0	370.2	370.0	371.4	370.5	370.4	370.6	373.2	371.6	371.0
12.....	370.5	370.3	370.0	370.1	370.0	371.4	370.7	370.4	370.6	373.2	371.4	372.0
13.....	370.5	370.3	370.0	370.1	370.0	371.4	371.0	370.4	370.6	373.1	371.3	372.1
14.....	370.4	370.5	370.0	370.1	370.0	371.3	370.0	370.4	370.6	373.0	371.0	372.0
15.....	370.3	370.2	370.0	370.1	370.1	371.2	370.0	370.3	370.7	373.0	371.0	372.6
16.....	370.3	370.2	370.0	370.0	370.1	371.1	370.1	370.3	370.7	372.9	371.0	372.0
17.....	370.9	370.2	370.0	370.3	370.1	371.0	370.1	370.3	370.8	372.9	371.0	371.9
18.....	370.9	370.2	370.0	370.0	370.0	371.0	370.1	370.3	370.8	372.5	371.0	371.6
19.....	370.9	370.1	370.1	370.0	370.0	371.0	370.2	370.3	370.8	372.4	371.0	371.6
20.....	370.9	370.1	370.1	370.0	370.1	371.0	370.2	370.2	370.9	372.4	371.0	371.5
21.....	370.9	370.1	370.1	369.9	370.1	370.9	370.1	370.2	370.9	372.5	371.0	371.5
22.....	370.9	370.1	370.1	369.9	370.1	370.9	370.1	370.2	370.95	372.5	371.0	371.4
23.....	370.9	370.1	370.1	370.0	370.1	370.9	370.0	370.2	371.0	372.4	370.9	371.4
24.....	370.9	370.0	370.2	370.1	370.7	370.8	370.0	370.1	371.4	372.3	370.9	371.3
25.....	370.9	370.0	370.2	369.9	370.4	370.8	370.0	370.2	371.4	372.2	370.9	371.3
26.....	370.7	370.0	370.1	369.9	370.1	370.7	369.1	370.3	372.3	372.1	370.8	371.2
27.....	370.7	370.0	370.1	370.0	370.3	370.7	369.1	370.3	372.7	372.0	370.8	371.2
28.....	370.6	370.0	370.2	370.0	370.4	370.6	369.1	370.3	373.0	372.0	371.0	371.2
29.....	370.6	370.0	370.2	370.0	370.4	370.7	369.2	.....	373.4	372.0	371.2	371.3
30.....	370.6	370.0	370.2	370.0	370.5	370.7	369.5	.....	373.4	372.0	371.2	371.3
31.....	370.6	370.0	.....	370.0	.....	370.7	369.6	.....	373.4	.....	371.5	.....

ONEIDA CREEK

DESCRIPTION

The headwaters of Oneida creek are in northeastern Madison county. Above Peterboro the drainage is mostly through a swamp averaging one-half mile in width by $2\frac{1}{2}$ miles in length. The stream flows easterly from this swamp to the foot of the falls above Munnsville. In the vicinity of the falls the stream descends from elevation 1,100 to elevation 700 in about three miles. From Munnsville to Oneida the creek flows through a somewhat dissected valley of one mile average width, bordered by steep slopes rising 500 feet or more within a distance of one mile on either side. North of Oneida Castle the drainage is rather flat. Oneida creek enters the eastern end of Oneida lake near South Bay, the elevation of the lake being at 370. Water-power is utilized at Oneida Community and at Munnsville. A feeder

dam at Oneida Castle diverts most of the low-water flow to the Erie canal through a feeder 2.9 miles long, entering the canal at Durhamville. The drainage basin as a whole is irregularly pear-shaped and the upper basin is broad. The slopes are steep and the tributaries are well distributed and moderately branching. This basin is shown on the Morrisville, Oneida, Chittenango and Cazenovia sheets of the U. S. Geological Survey topographic maps.

ONEIDA CREEK AT KENWOOD

Location.—At the Oneida Community dam and silk-mill at Kenwood.

Drainage area.—63 square miles.

Records available.—June 11, 1907, to December 31, 1916.

Gages.—Vertical staffs, read twice daily.

Discharge computations.—The discharge over the dam is computed by use of coefficients determined in part by current-meter measurements. The water-surface is assumed to vary uniformly between observations in order to determine the length of time and head of flows over the crest as a basis for computation. Flow through turbines based on Department's rating of wheels by meter measurements in tail-race.

Control.—Timber crib dam with fairly level crest, three auxiliary spillways and turbines in mill.

Extremes of discharge.—Three months period: Maximum discharge recorded, July 14, at 6:50 A. M., 373 second-feet. Minimum discharge not given, water being drawn down during low-water period.

1907–1916: Maximum discharge recorded, morning of March 28, 1914, 1,710 second-feet. Minimum recorded discharge occurred at various times during the years 1907–1909 and 1912, when the wheels were shut down and there was no flow over the crest, the only discharge being that due to leakage, estimated at 3 second-feet.

Accuracy.—Local pondage, the operation of the wheels for short periods and the intermittent waste of water over spillways in the hydraulic raceway cause variations in the daily flow that produce an indeterminate error in the estimated mean daily discharge.

GAGING OF STREAMS: OSWEGO-ONEIDA-SENECA BASIN 165

Discharge measurements of ONEIDA CREEK AT KENWOOD for a period ended June 30, 1917

DATE	Made by	Gage height	Discharge
1916		<i>Feet</i>	<i>Sec.-ft.</i>
June 23.....	G. E. Gibson and M. W. Grimes.....	2.03	48.2
July 28.....	M. W. Grimes and J. Labishner.....	1.85	12.7

Daily discharge, in second-feet, of ONEIDA CREEK AT KENWOOD, for the year ended June 30, 1917. Arthur Mason, Observer

DAY	July	Aug.	Sept.	DAY	July	Aug.	Sept.
1.....	87	74	95	16.....	162	.....	132
2.....	82	74	105	17.....	139	.....	128
3.....	69	69	112	18.....	125	.....	126
4.....	69	69	112	19.....	116	.....	107
5.....	74	69	107	20.....	109	.....	107
6.....	79	69	126	21.....	101	.....	107
7.....	74	79	126	22.....	99	.....	126
8.....	85	.....	114	23.....	91	.....	130
9.....	74	.....	114	24.....	87	.....	121
10.....	74	.....	112	25.....	79	.....	116
11.....	74	.....	107	26.....	87	.....	107
12.....	74	.....	101	27.....	74	57	107
13.....	86	.....	95	28.....	74	112	116
14.....	332	.....	101	29.....	72	107	205
15.....	195	.....	149	30.....	69	101	147
				31.....	74	95	.....
				Mean.....	99.6	72.5	119

NOTE.—Mean discharge, August 8 to 26, inclusive, estimated as 67 second-feet, the water being drawn down for repairs to head-gates. Beginning October 1, the water was drawn down for repair to the dyke and the discharge has not been computed. The station was abandoned December 31.

Monthly discharge of ONEIDA CREEK AT KENWOOD, for the year ended June 30, 1917

[Drainage area, 63 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches in drainage area
July.....	332	69	99.6	1.581	1.82
August.....	112	57	72.5	1.151	1.33
September.....	205	95	119	1.889	2.11

CHITTENANGO CREEK

DESCRIPTION

Chittenango creek is the principal tributary of Oneida lake from the south. It comprises three main branches, namely, Butternut creek, Limestone creek and Chittenango creek proper. The three branches join near North Manlius. Above the junction with Butternut creek, Chittenango creek flows through an irregular dumb-bell-shaped area extending in a northwest and southeast direction. This area lies chiefly in the dissected, hilly region south of the line of the New York Central railroad. The length of the basin is about 22 miles. Its width in the upper portion is 9 miles; in the middle portion, 4 miles; in the lower portion, 7 miles. The drainage basin is deeply rolling, mostly cleared, and has a heavy, impervious soil with extensive sodded-meadow areas. The soil is underlaid by shale rock, often outcropping, and affording numerous springs. The stream tributaries are somewhat sparse. Marsh and swamp areas are very limited, with the exception of the Nelson swamp, about two square miles in area.

The outflow from Cazenovia lake is regulated and there is also a reservoir at Erieville. These reservoirs are used to supply the summit level of the Erie canal. The capacities of these reservoirs are given as follows in New York State Barge Canal Report for 1901, page 663:

Erieville Reservoir

Storage capacity	318,424,000 cubic feet
Water-surface	340 acres

Cazenovia Lake

Storage capacity	206,997,000 cubic feet
Water-surface	1.7 square miles

The head of the stream is near Erieville reservoir, which is formed by a dam crossing a small stream valley, formerly tributary to Chenango river through Eaton brook. Cazenovia lake is located 10 miles below Erieville reservoir, which is at the head of the stream at elevation 1,190. From its outlet to the foot of the plateau at Erie canal crossing, the stream descends 770 feet, the distance, following the general trend of the valley, being 11 miles. At Chittenango falls there occurs a precipitous descent of about 100 feet.

CHITTENANGO CREEK AT CHITTENANGO

This station, established May 22, 1901, is located at the Main street bridge over Chittenango creek at Chittenango. This was originally a discharge station, but since 1911 it has been maintained for water-surface elevation only. A staff gage, secured to the downstream end of the left abutment of the bridge, was used until September 28, 1916, when it was replaced by a standard Type A gage, No. 191, having a range of 8 feet, between elevations 449.0 and 457.0. The gage bench-mark is the top of the concrete coping at angle with wing, east abutment, upstream side of Main street bridge, and is at elevation 458.905 (B. C. datum).

The gage is read twice daily—morning and afternoon—to tenths, with occasional readings to half-tenths and hundredths.

Daily elevation of water-surface (B. C. datum) of CHITTENANGO CREEK AT CHITTENANGO, for the year ended June 30, 1917. O. D. Merwin and W. S. Siver, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	451.72	451.42	451.42	451.60	451.40	451.80	451.85	452.00	452.20	453.45	451.94	452.32
2	451.72	451.42	451.47	451.80	451.55	451.72	451.60	451.90	451.98	453.58	451.98	452.00
3	452.27	451.52	451.42	451.80	451.50	451.62	451.70	451.70	451.95	453.38	451.94	452.28
4	452.02	451.47	451.32	451.55	451.55	451.60	451.70	451.90	451.84	453.08	451.88	452.10
5	451.87	451.87	451.32	451.60	451.90	451.80	452.00	452.00	451.70	452.90	452.44	452.08
6	451.77	451.62	451.52	451.45	451.70	451.82	452.30	451.90	451.70	453.05	452.68	452.32
7	451.67	451.52	451.57	451.45	451.15	451.72	452.00	452.00	451.85	453.40	452.27	452.60
8	451.62	451.67	451.52	451.50	451.70	451.65	451.90	451.80	451.68	452.92	452.14	453.40
9	451.62	451.67	451.62	451.45	451.35	451.60	451.85	451.80	451.72	452.82	452.19	453.20
10	451.67	451.57	451.52	451.45	450.70	451.80	451.85	451.90	451.72	452.84	452.02	452.75
11	451.62	451.47	451.47	451.40	451.65	451.60	451.70	452.05	452.27	452.58	451.98	454.75
12	451.62	451.97	451.32	451.45	451.65	451.65	451.85	452.00	452.70	452.90	452.45	453.72
13	451.97	451.77	451.32	451.50	451.55	451.58	452.15	452.00	452.45	453.52	452.20	453.32
14	451.97	451.72	451.32	451.75	451.70	451.70	452.80	451.95	452.32	452.18	452.05	453.18
15	451.67	451.62	452.02	451.55	451.60	451.75	453.65	451.90	452.08	452.12	452.00	453.05
16	451.72	451.47	451.97	451.55	451.60	451.80	453.55	451.82	452.00	452.10	452.02	453.05
17	451.67	451.37	451.67	451.55	451.35	451.60	453.60	451.75	452.03	452.02	452.06	452.88
18	451.62	451.47	451.57	451.50	451.60	451.90	453.25	451.70	452.00	452.08	452.00	452.78
19	451.57	451.37	451.47	451.45	451.60	451.65	453.40	451.68	451.95	452.22	451.99	452.78
20	451.42	451.37	451.57	451.45	451.70	451.85	453.15	451.57	451.92	452.28	452.35	452.60
21	451.52	451.32	451.52	451.90	451.65	451.75	453.10	451.66	452.15	452.28	452.02	452.82
22	451.57	451.42	451.37	451.70	451.85	451.80	453.10	451.72	452.45	452.12	452.12	452.42
23	451.52	451.32	451.62	451.70	451.75	451.75	452.80	451.58	453.08	452.01	452.06	452.28
24	451.47	451.32	451.67	451.75	452.35	451.75	452.60	451.58	453.82	452.00	452.02	452.45
25	451.52	451.32	451.47	451.70	451.90	451.75	452.45	451.68	453.62	451.95	452.08	452.45
26	451.52	451.32	451.47	451.60	451.60	451.90	452.40	451.68	453.82	451.88	452.00	452.35
27	451.47	451.82	451.62	451.80	451.80	451.80	452.60	452.82	454.05	452.00	452.00	452.68
28	451.52	451.62	451.52	451.60	451.78	451.80	452.80	452.42	453.88	451.92	452.05	452.32
29	451.52	451.57	451.95	451.50	451.80	451.75	452.10	.....	453.42	451.85	452.55	452.72
30	451.47	451.37	451.95	451.55	451.90	451.95	452.48	.....	453.15	451.90	452.70	452.70
31	451.42	451.42	.....	451.50	.....	451.80	452.30	.....	453.01	.....	452.42	.....

BUTTERNUT CREEK

DESCRIPTION

The headwaters of Butternut creek lie at elevation 1,700 feet, near the south line of Onondaga county. This stream drains a narrow basin about 24 miles in length and having an average width of about 3 miles. The stream flows in a northerly direction. Jamesville reservoir is located 14 miles below the source at elevation about 640. North of the Erie canal the stream flows out into the flat lands, at elevation about 400, which border Oneida lake for a width of several miles. Butternut creek is joined by Limestone creek near North Manlius at a point about $11\frac{1}{2}$ miles above its junction with Chittenango creek. The Erie canal crosses the stream $4\frac{1}{2}$ miles below Jamesville. Above the Erie canal crossing the slopes are steep and the tributaries are mostly short laterals. Jamesville reservoir has a capacity of 170,000,000 cubic feet. The water-surface area is 252 acres. At a distance of 2.35 miles below Jamesville there is a dam which diverts part of the stream to the Orrville feeder. This feeder is 2.25 miles in length.

BUTTERNUT CREEK AT JAMESVILLE

Location.—At the first bridge over Butternut creek above the head of the Orrville feeder and about $1\frac{1}{2}$ miles below the village of Jamesville.

Drainage area.—53 square miles.

Records available.—Gage heights, July 25, 1907, to June 30, 1917. Discharge, July 25, 1907, to September 15, 1915.

Gage.—Standard chain gage secured to left-hand abutment of old bridge, read to tenths twice daily — at 8 A. M. and 4 P. M.

Discharge measurements.—Made from downstream side of bridge, and by wading above and below gage.

Discharge computations.—Due to changes in the control in September, 1915, and October, 1916, new rating curves are necessary. Sufficient measurements have not been made to establish these curves. The discharge is not available since October 1, 1915,

and the published table for the month of September, 1915, is subject to revision.

Control.—Gravel rift 400 feet below gage; changeable. The control was materially raised by deposit of gravel during flood about September 14, 1915. A channel was opened through this gravel rift in October, 1916, to lower the water during repairs to the bridge.

Extremes of discharge.—Current year: Maximum stage recorded, 7.2 feet; January 1 at 8 A. M. and 4 P. M.; discharge not available. Minimum stage recorded, 2.4 feet, January 24 and 27 at 8 A. M.; discharge not available.

1907-1917: Maximum stage recorded, 7.2 feet, January 1, 1917, at 8 A. M. and 4 P. M.; discharge not available. Minimum stage recorded, 0.10 foot, 10 days in June and 10 days in July, 1909; discharge, 2 second-feet.

Regulation.—By the Jamesville reservoir for the water-supply of the Erie canal, capacity 170,000,000 cubic feet, water-surface area 252 acres. Daily flow affected by operation of mill about a mile upstream.

Discharge measurements of BUTTERNUT CREEK AT JAMESVILLE, for a period ended June 30, 1917

DATE	Made by	Gage weight	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
1916			
June 21.....	G. E. Gibson and M. W. Grimes.....	3.32	75.6
July 27.....	M. W. Grimes and J. Labishner.....	2.78	14.0
1917			
Feb. 27.....	M. W. Grimes and C. J. Grace.....	2.92	74.2
April 3.....	M. W. Grimes and C. J. Grace.....	3.56	196

Daily gage height, in feet, of BUTTERNUT CREEK NEAR JAMESVILLE, for the year ended June 30, 1917. Marie Brandt Brown, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.25	2.75	3.1	3.55	2.85	3.2	7.2	4.35	2.75	4.15	.....	.....
2.....	3.15	2.85	3.05	3.55	2.8	3.25	6.85	4.25	2.8	4.05	.....	.....
3.....	3.15	2.8	3.05	3.45	2.7	4.15	6.75	4.35	2.75	3.5	.....	.....
4.....	3.05	2.75	3.1	3.45	2.8	3.1	6.6	4.45	2.8	3.45	.....	.....
5.....	3.05	2.85	3.0	3.4	2.75	3.2	6.4	4.5	2.75	3.3	.....	.....
6.....	3.15	2.95	3.0	3.35	2.65	3.15	6.35	4.45	2.7	3.35	.....	.....
7.....	3.15	2.95	3.1	3.35	2.75	3.2	6.0	4.45	2.85	3.3	.....	.....
8.....	3.05	3.0	3.05	3.35	2.75	3.3	5.85	4.4	2.8	3.35	.....	.....
9.....	3.05	3.0	3.15	3.45	2.65	3.15	5.7	4.35	3.75	3.35	.....	.....
10.....	3.1	3.0	3.25	3.45	2.6	3.15	5.55	4.25	3.75	3.4	.....	.....
11.....	3.05	2.95	3.15	3.35	2.75	3.25	5.45	4.15	3.7	.....	.....	.....
12.....	3.05	3.05	3.15	3.35	2.85	3.2	5.45	4.25	3.75	.....	.....	.....
13.....	3.1	3.15	3.25	3.4	2.8	3.2	5.3	4.25	3.45	.....	.....	.....
14.....	3.0	3.05	3.25	3.45	2.9	2.95	2.5	4.35	3.4	.....	.....	3.35
15.....	3.05	2.85	3.35	3.45	3.0	3.1	2.55	4.35	3.25	.....	.....	3.45
16.....	3.05	2.85	3.25	3.55	2.9	3.05	2.55	4.25	3.2	.....	.....	3.3
17.....	3.0	2.75	3.35	3.55	2.95	3.0	2.6	4.15	3.55	.....	.....	3.35
18.....	2.95	2.85	3.35	3.5	2.95	3.0	2.65	3.45	3.3	.....	.....	3.3
19.....	2.85	2.75	3.25	3.45	2.75	2.95	2.55	3.55	3.85	.....	.....	3.25
20.....	2.85	2.8	3.25	3.45	2.8	2.85	2.65	3.75	3.35	.....	.....	3.35
21.....	2.8	2.85	3.3	3.5	3.05	2.85	2.6	3.7	3.75	.....	.....	3.65
22.....	2.8	2.95	3.3	3.5	3.15	2.8	2.55	3.75	3.95	.....	.....	3.65
23.....	2.85	2.95	3.3	3.5	3.1	2.85	2.55	3.95	4.5	.....	.....	3.55
24.....	2.75	3.0	3.3	3.35	3.2	2.75	2.45	3.9	4.45	.....	.....	3.35
25.....	2.75	3.05	3.15	3.3	3.25	2.7	2.55	3.95	4.35	.....	.....	3.3
26.....	2.85	3.15	3.15	3.3	4.45	2.8	2.55	4.1	4.35	.....	.....	3.25
27.....	3.0	3.15	3.25	3.2	3.65	2.85	2.45	3.05	4.35	.....	.....	3.35
28.....	2.95	3.1	3.35	3.05	3.6	2.85	5.5	2.75	4.2	.....	.....	3.65
29.....	2.85	3.2	3.45	3.1	3.5	2.85	4.2	.....	4.15	.....	.....	3.65
30.....	2.75	3.2	3.5	3.0	3.4	2.9	4.4	.....	4.25	.....	.....	3.55
31.....	2.8	3.2	.....	3.0	.....	a	4.25	.....	4.05	.....	.....	.....

a No record.

Norm.—April 11 to June 13, inclusive, no record; gage destroyed by flood.

LIMESTONE CREEK

DESCRIPTION

The natural source of Limestone creek is on the slope of Tinselor hills near Erieville, Madison county, N. Y. In the construction of the Chenango canal, Tioughnioga creek was diverted and DeRuyter reservoir receives the drainage tributary to this stream above the point of diversion and also that from additional area tributary to Limestone creek, making a total area above the reservoir outlet of 18.8 square miles. The reservoir has a capacity of 504,468,000 cubic feet and a surface area of about 1.0 square mile. The stored waters are discharged through Limestone creek during the canal navigation season. Water is diverted to a feeder by a dam below Manlius. The feeder is used as a water-power canal to supply several mills at Fayetteville,

at which place there is a second diverting dam. The feeder enters Erie canal 1.2 miles below Fayetteville. Power is also developed on Limestone creek at Manlius and Edwards Falls. The headwaters of Limestone creek are at elevation 1,900 feet. DeRuyter reservoir is at elevation 1,286 feet. The fall of the stream is rapid in the first three miles below the reservoir, the elevation at the lower end of this reach at Delphi being 900 feet. From Delphi to Buellville the creek follows a winding course over a flat valley bottom averaging about one-half mile in width. The descent in 8 miles between these points is 150 feet. Between Buellville and Manlius, a distance of two miles, a fall of 200 feet occurs. This is mostly concentrated at Edwards Falls. The west, or Watervale branch of Limestone creek joins the main stream below Manlius. The precipitous descent of about 100 feet in a short distance occurs at this branch at Stone Quarry Falls. The drainage basin is shown on the Syracuse, Tully, Chittenango and Cazenovia sheets of the United States Geological Survey topographic maps.

LIMESTONE CREEK AT MANLIUS

Location.—At the Wilcox avenue bridge in the village of Manlius and above the entrance of the west, or Watervale branch.

Drainage area.—67 square miles. (U. S. G. S. topographic maps.)

Records available.—Gage height, July 23, 1907, to June 30, 1917. Discharge, January 1, 1911, to September 30, 1915.

Gage.—Standard chain gage attached to downstream side of bridge, read once daily to tenths.

Discharge measurements.—Made from downstream side of the bridge and by wading below gage.

Control.—Rapids about 600 feet below the gage, gravel and boulders, fairly permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 7.6 feet, June 11 at 5:00 A. M.; discharge not available. Minimum stage recorded, 2.3 feet, August 16, 21, 24, 25 and 27, November 8 and February 14; discharge not available.

1911–1917: Maximum stage recorded, 7.6 feet, June 11, 1917, at 5:00 A. M.; discharge not available. Minimum stage recorded, 1.90 feet, August 23, 1913; discharge, 6 second-feet.

Diversion.—Tioughnioga creek, a tributary of the Susquehanna, is diverted to the DeRuyter reservoir and this territory above the point of diversion is included in the discharge area given above.

Regulation.—Seasonal by DeRuyter reservoir, daily by hydro-electric plant one mile upstream.

Discharge measurements of LIMESTONE CREEK AT MANLIUS, for a period ended June 30, 1917

DATE	Made by	Gage height	Discharge
1916		Feet	Sec.-ft.
June 15.....	G. E. Gibson and M. W. Grimes.....	2.25	53.1
July 27.....	M. W. Grimes and J. Labishiner.....	2.18	42.2
1917			
April 3.....	M. W. Grimes and C. J. Grace.....	2.98	330.6

Daily gage height, in feet, of LIMESTONE CREEK AT MANLIUS, for the year ended June 30, 1917. J. R. Bixby, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.0	2.6	3.0	3.0	2.6	3.0	3.0	3.0	3.5	3.3	3.0	3.0
2.....	3.0	2.8	2.8	2.8	2.8	3.0	3.6	2.6	3.6	3.6	3.0	3.0
3.....	3.4	3.0	2.4	2.8	3.0	3.1	3.6	2.7	3.2	3.6	3.4	3.2
4.....	3.0	2.4	2.4	2.5	3.0	3.0	3.8	3.4	3.2	3.4	3.6	3.4
5.....	3.0	2.4	2.4	2.4	2.7	3.6	4.1	3.4	3.0	3.4	3.7	4.2
6.....	2.7	2.4	2.4	2.4	2.7	3.6	4.3	3.0	2.8	3.2	3.3	5.7
7.....	2.7	2.4	3.0	2.6	2.5	3.8	3.2	2.6	2.8	3.2	3.5	4.5
8.....	2.7	2.4	2.8	2.6	2.3	3.5	3.0	2.6	2.8	3.3	3.2	4.5
9.....	2.7	3.0	2.4	2.6	2.6	3.0	3.0	2.4	3.0	3.2	3.6	4.3
10.....	3.0	3.2	2.5	2.5	2.6	3.2	3.4	2.5	3.2	3.2	3.0	3.6
11.....	3.0	3.2	2.8	3.0	2.8	3.2	3.0	2.5	3.2	3.0	3.0	7.0
12.....	3.6	3.4	3.0	2.8	2.6	3.0	2.6	2.4	4.3	3.0	3.4	6.7
13.....	3.0	3.4	3.0	2.7	2.6	3.0	2.6	2.4	4.0	3.0	3.0	5.5
14.....	3.0	3.0	3.6	3.0	3.0	2.8	3.4	2.3	3.3	3.2	3.0	5.0
15.....	3.0	2.4	3.0	2.7	2.4	2.4	3.6	2.6	3.2	3.0	3.0	5.4
16.....	2.6	2.3	2.7	2.7	2.8	2.6	3.7	3.2	3.2	3.2	2.8	4.2
17.....	2.6	2.4	2.8	3.0	3.0	2.4	2.8	3.0	3.0	3.2	3.0	4.0
18.....	2.6	3.0	2.6	3.0	3.0	2.4	2.6	2.7	3.2	3.0	3.0	3.6
19.....	2.6	2.6	2.6	2.8	2.7	2.4	2.6	2.5	3.0	3.2	3.2	3.6
20.....	3.0	2.4	2.4	3.4	3.0	2.8	2.6	2.8	3.0	3.0	3.6	3.2
21.....	3.0	2.3	2.7	3.0	2.7	3.2	2.7	2.4	3.5	3.3	3.3	4.0
22.....	3.2	2.4	2.6	2.7	2.7	3.0	3.5	2.4	3.7	3.2	3.6	3.2
23.....	3.0	2.4	2.8	3.0	3.0	3.4	3.0	2.4	4.8	3.0	3.5	3.0
24.....	2.6	2.3	2.8	2.8	4.2	2.9	3.0	2.4	5.0	3.0	3.0	3.0
25.....	2.6	2.3	2.6	2.8	3.8	3.0	2.7	2.4	4.7	2.8	3.6	3.4
26.....	a	2.7	3.0	2.4	3.0	3.6	2.7	2.7	4.5	3.0	3.2	3.2
27.....	2.4	2.3	3.0	2.4	3.0	3.4	2.5	4.0	5.8	3.3	3.4	4.3
28.....	2.4	2.6	3.4	2.4	3.4	3.0	2.7	3.7	5.0	3.0	3.0	3.4
29.....	2.6	3.0	3.4	2.4	3.6	3.0	3.0	.....	4.2	3.0	4.2	3.6
30.....	2.6	2.8	3.5	2.4	3.6	3.0	3.5	.....	4.0	3.0	3.7	3.2
31.....	2.4	2.6	.....	2.5	.....	3.4	3.0	.....	3.2	.....	3.3	.....

a No record.

LIMESTONE CREEK AT FAYETTEVILLE

This station, established August 27, 1905, is located above the State dam at the head of the Erie canal feeder at Fayetteville. A staff gage, secured to the right abutment of the State dam, was used until August 23, 1916, when a standard Type A gage, No. 194, was erected on the west wing of the south abutment of the bridge over the feeder. This gage has a range of 6 feet, between elevations 429.0 and 435.0. The gage bench-mark is a square cut in top of wall at gage and is at elevation 434.664 (B. C. datum).

The gage is read once daily — at noon — to tenths.

Daily elevation of water-surface (B. C. datum) of LIMESTONE CREEK ABOVE DAM AT FAYETTEVILLE, for the year ended June 30, 1917. Geo. Ebeling, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	431.7	431.3	431.2	431.3	431.4	431.4	431.5	431.9	433.0	431.7	431.7	432.2
2.....	431.5	431.3	431.2	431.2	431.3	431.4	431.4	431.9	433.0	431.8	431.6	431.8
3.....	431.5	431.3	431.2	431.3	431.3	431.5	431.4	431.9	433.0	432.0	431.5	431.4
4.....	431.7	431.3	431.2	431.3	431.3	431.4	431.4	431.9	432.6	432.4	431.5	431.2
5.....	431.5	431.3	431.2	431.2	431.3	431.4	431.5	431.9	432.4	432.3	431.4	431.1
6.....	431.7	431.1	431.2	431.3	431.4	431.6	431.6	431.9	432.6	432.0	431.5	431.2
7.....	431.5	431.1	431.2	431.4	431.3	431.5	431.6	431.9	432.8	432.0	431.4	431.7
8.....	431.5	431.3	431.3	431.3	431.3	431.5	431.5	431.9	432.8	432.0	431.4	432.9
9.....	431.5	431.3	431.2	431.3	431.3	431.4	431.4	431.9	432.8	431.8	431.3	433.0
10.....	431.5	431.3	431.2	431.2	431.4	431.5	431.5	432.0	432.6	431.7	431.3	433.0
11.....	431.7	431.3	431.2	431.3	431.3	431.4	431.5	432.0	433.0	431.6	431.2	434.3
12.....	431.7	431.3	431.2	431.2	431.3	431.4	431.4	432.0	433.0	431.5	431.0	432.8
13.....	431.7	431.5	431.3	431.2	431.3	431.5	431.4	432.0	432.8	431.4	431.2	432.8
14.....	431.5	431.9	431.3	431.3	431.2	431.4	431.5	432.0	432.6	431.6	431.3	432.2
15.....	431.7	431.7	431.2	431.3	431.3	431.4	431.4	432.0	432.4	431.7	431.2	432.1
16.....	431.7	431.7	431.2	431.4	431.3	431.3	431.6	432.0	432.2	431.8	431.0	432.0
17.....	431.7	431.5	431.2	431.4	431.3	431.4	431.5	432.0	432.4	431.8	431.0	432.0
18.....	431.9	431.5	431.2	431.3	431.4	431.5	431.4	432.0	432.1	432.0	431.1	432.0
19.....	431.9	431.5	431.1	431.3	431.4	431.6	431.5	432.0	432.0	432.4	431.4	431.9
20.....	431.7	431.7	431.0	431.2	431.3	431.7	431.6	432.0	432.0	432.0	431.9	431.8
21.....	431.7	431.5	430.9	431.4	431.3	431.6	431.7	432.0	432.2	431.9	431.7	431.8
22.....	431.5	431.5	430.8	431.3	431.4	431.6	431.8	432.0	432.1	431.8	431.6	431.6
23.....	431.5	431.2	430.7	431.3	431.3	431.5	431.8	432.0	432.8	431.7	431.4	431.5
24.....	431.5	431.2	430.6	431.4	431.4	431.5	431.8	432.0	432.9	431.6	431.3	431.6
25.....	431.5	431.2	430.8	431.4	431.5	431.5	431.8	432.3	432.9	431.7	431.2	431.5
26.....	431.3	431.2	430.9	431.3	431.4	431.6	431.8	432.6	432.8	431.8	431.1	431.6
27.....	431.3	431.2	431.0	431.2	431.3	431.6	431.8	432.8	432.9	431.7	431.0	432.55
28.....	431.3	431.3	431.2	431.3	431.4	431.5	431.8	433.0	432.4	431.7	431.2	432.4
29.....	431.3	431.4	431.3	431.4	431.3	431.5	431.8	.....	431.8	431.6	431.4	432.5
30.....	431.3	431.2	431.4	431.3	431.3	431.5	431.8	.....	431.8	431.6	432.0	432.6
31.....	431.3	431.2	.....	431.4	.....	431.5	431.9	.....	431.7	.....	432.4	.....

LIMESTONE FEEDER AT FAYETTEVILLE

This station, established August 27, 1905, is located at the head of the Limestone feeder at Fayetteville.

The record is of the water-surface below the gates supplying the feeder for Limestone creek. Elevations were obtained by use of a reference point until August 23, 1916, when a standard Type A gage, No. 193, was erected on the east end of the north abutment of the bridge over the feeder at the dam. This gage has a range of 8 feet, between elevations 426.0 and 434.0 (B. C. datum).

The gage is read once daily — at noon — to tenths.

Daily elevation of water-surface (B. C. datum) of LIMESTONE FEEDER AT FAYETTEVILLE, for the year ended June 30, 1917. Geo. Ebeling, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	428.3	428.2	429.2	429.3	429.3	429.2						429.2
2.....	428.3	428.2	429.2	429.3	429.2	429.0						429.1
3.....	428.4	428.3	429.2	429.2	429.3	427.5						429.2
4.....	428.3	428.2	429.2	429.2	429.3	427.0						429.1
5.....	428.2	428.3	429.2	429.3	429.4	427.0						429.1
6.....	428.3	428.2	429.2	429.3	429.3	427.0					427.2	429.2
7.....	428.2	428.3	429.2	429.3	429.3	427.0					427.4	429.3
8.....	428.2	429.3	429.3	429.4	429.3	427.0					427.8	429.6
9.....	428.3	428.2	429.2	429.4	429.2	427.0					427.9	429.5
10.....	428.2	428.2	429.2	429.3	429.3	427.0					428.0	429.4
11.....	428.3	428.2	429.2	429.3	429.3	427.0					428.3	429.7
12.....	428.3	428.3	429.2	429.3	429.2						428.4	429.4
13.....	428.2	428.3	429.3	429.2	429.3						428.7	429.2
14.....	428.3	428.3	429.3	429.2	429.3						428.8	429.1
15.....	428.3	428.3	429.2	429.3	429.2						428.6	429.1
16.....	428.2	428.1	429.2	429.3	429.3						428.7	429.0
17.....	428.2	428.3	429.3	429.2	429.3						428.8	429.0
18.....	429.3	428.2	429.2	429.2	429.2						428.9	429.1
19.....	429.3	428.3	429.2	429.3	429.3						428.9	429.2
20.....	428.2	428.3	429.3	429.3	429.3						429.2	429.3
21.....	428.2	428.3	429.2	429.4	429.3						429.2	429.2
22.....	428.2	428.2	429.3	429.3	429.3						429.3	429.1
23.....	428.3	429.0	429.3	429.3	429.2						429.1	429.0
24.....	428.3	429.2	429.2	429.2	429.0						429.0	429.1
25.....	428.2	429.3	429.2	429.2	429.1						429.1	429.0
26.....	428.2	429.4	429.3	429.3	429.2						429.0	429.1
27.....	428.3	429.3	429.2	429.3	429.1						429.1	429.45
28.....	428.2	429.2	429.2	429.2	429.2						429.2	429.3
29.....	428.3	429.2	429.3	429.2	429.3						429.4	429.2
30.....	428.2	429.3	429.3	429.3	429.3						429.3	429.3
31.....	428.2	429.2		429.3							429.2	

NOTE.—Feeder not in use December 12 to May 5, inclusive; water below gage.

BLACK RIVER DRAINAGE BASIN**BLACK RIVER****DESCRIPTION**

Black river rises in the western part of Hamilton county, N. Y., flows southwestward across Herkimer county into Oneida county, turns near Forestport and runs somewhat west of north through Lewis county to eastern Jefferson county and then flows westward to Black River bay, at the eastern extremity of Lake Ontario. Its total drainage area is 1,930 square miles. The upper part of the basin is very rugged and mountainous, contains a large number of lakes and is in a part of the Adirondack forest.

The mean annual precipitation is about 40 inches, ranging from 55 inches in the extreme headwaters to perhaps 30 inches near Lake Ontario. The winters are generally quite severe and the stream flow is affected by ice for periods of several months.

The regimen of the river is controlled by storage on its upper tributaries (including Beaver river at Beaver River), a series of reservoirs on the headwaters of Moose river and additional reservoirs at Forestport and on the headwaters of the main river.

Water is diverted from Black river through Forestport feeder to supply the Black River canal at Boonville. A portion of this diverted water flows northward from Boonville and enters Black river again at Lyons Falls; the remainder flows southward through the Black River canal and enters the Erie canal at Rome.

BLACK RIVER NEAR BOONVILLE

Location.—At highway about 1 mile above the mouth of Sugar river, about 2 miles northeast of Boonville, Oneida county, and 2 miles, by river, downstream from Hawkinsville.

Drainage area.—303 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—February 16, 1911, to June 30, 1917.

Gage.—Chain, near center of left span, downstream side of bridge. Staff gage, graduated from 6.0 to 13.0 feet, on downstream side of right abutment, used for high-water readings. Gage read by W. D. Charbonneau.

Discharge measurements.—Made from a cable about one-half mile above gage at high stages and by wading near the cable at low stages.

Channel and control.— Rough and full of boulders; permanent.

Extremes of discharge.— Current year: Maximum stage recorded, 9.8 feet at 4 p. m., June 12; discharge, 5,240 second-feet. Minimum stage recorded, 3.1 feet at 4 p. m., August 21; discharge, 34 second-feet.

1911–1917: Maximum stage, approximately 12.5 feet during night of March 28, 1913, determined by leveling from flood-mark; discharge, approximately 10,000 second-feet. Minimum stage recorded, 3.0 feet at 8 a. m., September 29 and November 8, 1913, and October 8, 1914; discharge, 27 second-feet.

Ice.— Stage-discharge relation affected by ice.

Regulation and diversion.— The State dam at Forestport, about 8 miles upstream, provides a reservoir with a capacity of about 2,000,000,000 cubic-feet. Water is diverted from this reservoir during the navigation season through the Forestport feeder, flowing west to a basin in Boonville. The Black River canal flows north from this basin, entering the Black river at the foot of Lyons falls. A spillway from the basin overflows into Mill creek, a tributary to Black river. Water flowing through these two channels returns to the river below the gaging station, thus passing around it. The Black River canal also flows south from Boonville, passing out of the Black river drainage and entering the summit level of the Erie canal (or Barge canal) at Rome.

Occasional discharge measurements have been made at three points, to indicate the distribution of the diverted water. The water entering Boonville through the Forestport feeder has been measured at the highway bridge about 1 mile northeast of Boonville. During October, 1915, two water-stage recorders were installed on this canal, to obtain a continuous record of the flow. This is published as a separate station, "Forestport feeder near Boonville." The water flowing north from the basin through the Black River canal has been measured at the highway bridge just below the lock into this canal near the railroad station. The water flowing south from the basin has been measured at a private farm bridge about 1 mile southeast of Boonville. During September, 1915, two water-stage recorders were installed on this canal, to obtain a continuous record of the flow. This is published as a

separate station, "Black River canal, flowing south, near Boonville."

Accuracy.—Stage-discharge relation practically permanent. Affected by ice during a large portion of the period, December to March, inclusive. Rating curve well defined between 35 and 2,800 second-feet and fairly well defined between 2,800 and 4,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good, except for periods when the stage-discharge relation was affected by ice, when they were fairly good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of BLACK RIVER NEAR BOONVILLE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 26 <i>a</i>	A. H. Davison.....	3.54	72.5
Jan. 11 <i>b</i>	A. H. Davison.....	5.37	344
Feb. 10 <i>c</i>	A. H. Davison.....	5.24	301
Mar. 9 <i>c</i>	A. H. Davison.....	5.65	390
June 4.....	O. W. Hartwell.....	5.35	565

a Measurement made by wading.

b Measurement made through partial ice cover.

c Measurement made through complete ice cover.

Daily gage height, in feet, of BLACK RIVER NEAR BOONVILLE, for the year ended June 30, 1917. W. D. Charbonneau, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	4.15	3.5	3.85	4.8	4.25	7.9	5.2	6.0	5.8	8.6	5.9	5.9
2.....	4.50	3.46	3.8	4.85	4.8	7.6	5.15	5.9	6.3	8.8	6.0	5.4
3.....	5.20	3.49	3.7	4.7	5.2	6.7	5.1	5.9	6.4	8.9	6.1	5.45
4.....	5.05	3.6	3.55	4.55	5.4	6.2	5.15	5.7	6.2	8.5	6.4	5.4
5.....	5.0	3.6	3.85	4.3	5.3	6.3	5.25	5.6	5.9	7.9	6.5	5.6
6.....	5.1	3.42	3.7	4.25	4.8	6.6	5.5	5.5	5.8	7.9	6.3	6.4
7.....	4.7	3.46	3.38	4.0	4.25	6.7	5.45	5.45	5.8	8.0	6.4	7.1
8.....	4.4	3.6	3.28	3.8	4.1	6.5	5.3	5.4	5.9	7.8	6.1	7.6
9.....	4.0	3.65	3.7	3.7	3.95	6.4	5.5	5.3	5.6	7.7	6.0	8.0
10.....	3.48	3.55	3.7	3.55	4.2	6.3	5.6	5.25	5.7	7.4	6.2	8.5
11.....	3.24	3.6	3.7	3.65	4.25	6.1	5.35	5.2	6.1	6.6	6.4	9.0
12.....	3.86	3.8	3.55	3.8	4.2	5.8	5.8	5.15	6.3	6.0	6.5	9.7
13.....	3.34	3.65	3.35	3.9	4.25	5.7	5.8	5.1	6.5	5.7	6.2	9.6
14.....	3.22	3.55	3.28	4.1	4.35	5.45	6.4	5.05	6.3	5.6	6.0	9.3
15.....	3.32	3.55	3.7	4.2	4.25	5.3	6.9	4.9	6.4	5.45	6.0	8.9

Daily gage height, in feet, of BLACK RIVER NEAR BOONVILLE, for the year ended June 30, 1917—Continued

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
16.....	3.34	3.42	4.6	4.35	4.2	5.25	6.7	5.0	6.4	5.5	5.8	7.8
17.....	3.35	3.35	4.6	4.4	4.25	5.45	6.6	4.8	6.2	5.8	5.7	6.7
18.....	3.5	3.32	4.5	4.25	4.3	5.5	6.5	4.8	6.0	6.2	6.6	5.9
19.....	3.6	3.24	4.35	4.5	3.9	5.5	6.4	4.7	5.7	6.6	5.5	5.3
20.....	3.42	3.20	4.3	5.2	3.45	5.6	6.2	4.7	5.35	7.7	5.45	5.3
21.....	3.46	3.15	4.3	5.6	3.5	5.4	6.3	4.65	5.4	8.8	5.4	5.7
22.....	3.45	3.22	4.45	5.7	3.55	5.4	6.4	4.7	5.6	9.2	5.6	6.1
23.....	3.55	4.35	4.7	5.45	4.25	5.6	6.3	4.7	6.0	8.9	6.0	5.8
24.....	3.7	4.5	4.45	5.0	6.0	5.45	6.4	4.6	6.8	8.6	5.45	5.6
25.....	3.65	4.25	4.2	4.7	6.3	5.3	6.3	4.55	7.8	8.4	7.2	5.5
26.....	3.6	4.0	4.15	4.7	5.9	5.25	6.4	4.8	7.6	8.9	7.6	5.8
27.....	3.6	3.8	3.7	4.6	5.1	5.2	6.4	5.8	7.6	8.9	7.8	5.1
28.....	3.45	4.3	3.34	4.45	4.4	5.1	6.2	6.2	7.2	8.1	7.5	5.4
29.....	3.5	4.2	3.85	4.3	5.2	5.1	6.2	.....	7.1	7.3	7.3	5.7
30.....	3.55	4.0	4.5	4.2	7.0	5.2	6.1	.....	7.4	6.4	7.2	6.1
31.....	3.0	3.95	.....	4.3	.....	5.1	6.1	.....	8.0	.....	6.8	.....

NOTE.—Stage-discharge relation affected by ice, December 16 to March 28, inclusive.

Daily discharge, in second-feet, of BLACK RIVER NEAR BOONVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	174	72	119	335	194	2,740	300	600	500	3,620	855	855
2.....	250	68	111	352	335	2,380	280	550	700	3,380	920	580
3.....	490	71	97	305	490	1,460	260	550	750	4,010	990	605
4.....	430	84	78	262	580	1,060	280	480	600	3,480	1,210	580
5.....	410	84	119	205	535	1,140	300	420	500	2,740	1,290	680
6.....	450	63	97	194	335	1,370	380	400	460	2,740	1,140	1,210
7.....	305	68	58	145	194	1,460	380	380	460	2,860	1,210	1,540
8.....	227	84	49	111	164	1,290	320	360	480	2,620	990	2,380
9.....	145	90	97	78	136	1,210	380	320	380	2,500	820	2,880
10.....	70	78	97	78	184	1,140	440	300	400	2,160	1,060	3,490
11.....	46	84	97	90	194	990	340	300	600	1,370	1,210	4,140
12.....	57	111	78	111	184	795	320	280	700	920	1,290	5,100
13.....	55	90	58	127	194	735	550	260	800	735	1,060	4,960
14.....	44	78	49	164	216	605	850	240	700	680	920	4,540
15.....	53	78	97	184	194	535	1,200	220	750	605	920	4,010
16.....	55	63	275	216	184	500	1,000	240	750	630	795	2,620
17.....	56	56	275	237	194	480	950	200	600	795	735	1,460
18.....	72	53	250	194	205	440	900	190	550	1,060	680	855
19.....	84	46	216	250	127	420	850	180	420	1,370	630	535
20.....	63	42	205	490	66	400	750	170	280	2,500	605	535
21.....	68	38	205	680	72	340	750	170	300	3,880	580	735
22.....	66	44	238	735	90	380	850	170	380	4,410	680	990
23.....	78	216	305	605	194	420	800	170	500	4,010	920	795
24.....	97	250	238	410	920	360	800	150	950	3,620	605	680
25.....	90	194	184	305	1,040	320	800	140	1,800	3,360	1,940	630
26.....	84	145	174	305	855	300	800	190	1,900	4,010	2,380	795
27.....	84	111	97	275	450	300	800	500	1,800	4,010	2,620	450
28.....	66	205	55	238	227	260	750	700	1,800	2,980	2,270	580
29.....	72	184	119	205	490	260	700	.....	1,840	2,050	2,050	735
30.....	78	145	250	184	1,740	300	650	.....	2,160	1,210	1,940	990
31.....	84	136	.....	205	.....	260	650	.....	2,860	.....	1,540	.....
Mean...	142	101	146	267	366	794	625	315	593	2,490	1,190	1,710

NOTE.—Discharge, December 16 to March 28, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of BLACK RIVER NEAR BOONVILLE, for the year ended June 30, 1917

[Drainage area, 303 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	490	44	142	0.469	0.54
August.....	250	38	101	0.333	0.38
September.....	305	49	146	0.482	0.54
October.....	735	78	267	0.882	1.02
November.....	1,740	66	366	1.21	1.35
December.....	2,740	260	794	2.62	3.02
January.....	1,200	260	625	2.06	2.38
February.....	700	140	315	1.04	1.08
March.....	2,860	280	893	2.95	3.40
April.....	4,410	605	2,490	8.22	9.17
May.....	2,620	580	1,190	3.93	4.53
June.....	5,100	450	1,710	5.64	6.29
The year.....	5,100	38	753	2.49	33.70

NOTE.—The figures in the above table indicate the flow of the river as regulated by the operation of the Forestport reservoir. See "Diversions" in the station description.

FORESTPORT FEEDER NEAR BOONVILLE

Location.—Slope station at the lower end of feeder, above the point where it enters the basin at Boonville. A spillway takes water from the feeder just below gage No. 2, discharging into Mill creek and entering Black river below the Boonville gaging station. Other spillways above Hawkinsville discharge into Black river above the gaging station. There are no spillways between gage No. 1 and gage No. 2. The sum of this record and the record for the Black river near Boonville indicates the total run-off of the Black river basin.

Records available.—Occasional discharge measurements, 1900 and 1905 to 1915. Continuous record, October 30, 1915, to June 30, 1917.

Gages.—Two Gurley 7-day water-stage recorders with natural scale for gage heights. The float wells are 1½ by 2 feet, inside dimensions, the bottoms of which are about 1½ feet below the normal elevation of water-surface in the canal. They are 2.53 miles apart.

Gage No. 1 is located at the downstream end of the left abutment of the steel highway bridge in the village of Hawkinsville.

Gage No. 2 is located on the left bank just below a farm bridge, about 1 mile above the basin at Boonville.

These gages and the two gages in the Black River canal, flowing south, near Boonville, are all set at the same datum.

Discharge measurements.—Made from the steel highway bridge at gage No. 1 in Hawkinsville.

Ice.—There is no flow in the canal during frozen season.

Regulation.—Flow in the feeder is regulated at the outlet of Forestport reservoir.

Accuracy.—The variation of the coefficient in Chezy formula, as indicated by discharge measurements, seems consistent. Results good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of FORESTPORT FEEDER NEAR BOONVILLE, during the year ended June 30, 1917

DATE	Made by	GAGE HEIGHT		Discharge
		Gage No. 1	Gage No. 2	
		<i>Feet</i>	<i>Feet</i>	<i>Sec.-ft</i>
July 6.....	A. H. Davison.....	3 392	1 955	304
July 6.....	A. H. Davison.....	3 381	1 948	303
July 6.....	A. H. Davison.....	3 346	1 898	290
July 6.....	A. H. Davison.....	3 334	1 894	293
July 26.....	A. H. Davison.....	3 288	1 893	281
Sept. 7.....	A. H. Davison.....	3 450	2 180	260
Sept. 20.....	A. H. Davison.....	3 374	2 132	238
Oct. 12.....	A. H. Davison.....	3 321	1 952	202
Oct. 31.....	E. D. Burchard.....	3 556	2 146	288
Oct. 31.....	E. D. Burchard.....	3 547	2 138	291
Oct. 31.....	E. D. Burchard.....	3 532	2 142	290
Oct. 31.....	E. D. Burchard.....	3 528	2 130	289
Nov. 24.....	A. H. Davison.....	3 325	1 885	278
June 2.....	O. W. Hartwell.....	2 47	.....	189
June 4.....	O. W. Hartwell.....	2 49	1 49	185
June 12.....	O. W. Hartwell.....	2 40	1 14	195

Daily discharge, in second-feet, of FORESTPORT FEEDER NEAR BOONVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	244	273	269	237	293							a150
2	243	271	262	232	300							189
3	269	278	260	258	303							a210
4	273	286	260	245	297							a193
5	274	285	261	247	291							273
6	293	280	260	250	291							287
7	281	269	261	253	286							297
8	290	262	255	255	290							330
9	283	269	249	251	287							314
10	271	265	245	255	299							302
11	276	260	244	252	300							a320
12	267	262	238	253	305							195
13	266	258	237	262	311							261
14	284	256	223	245								286
15	280	253	246	232								276
16	267	248	259	231								283
17	259	237	256	238								258
18	300	232	245	248								251
19	307	222	242	257								306
20	297	217	259	248								308
21	275	216	259	229								278
22	240	222	255	248								293
23	270	262	259	244								285
24	304	274	255	256								276
25	304	272	251	256								276
26	286	270	248	259								282
27	272	269	236	234								242
28	299	271	228	275								277
29	283	267	259	277								295
30	278	263	245	277								295
31	275	263		291								

a Estimated.

Norm.—Mean discharge, November 14 to 30, inclusive, estimated as 284 second-feet.

Monthly discharge of FORESTPORT FEEDER NEAR BOONVILLE, for the year ended June 30, 1917

MONTH	DISCHARGE IN SECOND-FEET		
	Maximum	Minimum	Mean
July	307	240	278
August	286	216	259
September	269	223	251
October	291	229	251
November	311		289
December			
January			
February			
March			
April			
May			
June	330	150	274

BLACK RIVER CANAL, FLOWING SOUTH, NEAR BOONVILLE

Location.—Slope station in summit level of Black River canal near Boonville, Oneida county.

Records available.—Occasional discharge measurements, 1900 and 1905 to 1915. Continuous record September 16, 1915, to June 30, 1917.

Gages.—Two Gurley 7-day water-stage recorders with natural scale for gage heights. They are 1.81 miles apart. These gages and the two gages in the Forestport feeder near Boonville are all set at the same datum. Recorders inspected by Philip Joynt.

Gage No. 1 is located on the right bank (opposite tow-path) about 50 feet downstream from the collector's office in Boonville.

Gage No. 2 is located on the right bank (opposite tow-path) about 300 yards above lock 70 and 50 yards above the spillway from the canal into Lansingkill.

Discharge measurements.—Made from the steel and concrete highway bridge in the village of Boonville, a short distance below gage No. 1.

Ice.—There is no flow in the canal during the frozen season.

Diversions.—There are no diversions between gage No. 1 and gage No. 2. This station indicates the amount of water diverted from the Black river drainage into the Mohawk river drainage for canal purposes.

Regulation.—Flow in the canal is regulated by the operation of the spillway and sluice-gates at lock 70 and also by discharge of Forestport feeder into the basin at Boonville.

Accuracy.—The variation of the coefficient in Chezy formula, as indicated by discharge measurements, seems consistent. Results good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of BLACK RIVER CANAL, FLOWING SOUTH, NEAR BOONVILLE,
during the year ended June 30, 1917

DATE	Made by	GAGE HEIGHT		Discharge Sec.-ft.
		Gage No. 1	Gage No. 2	
		<i>Feet</i>	<i>Feet</i>	
July 7.....	A. H. Davison.....	1.225	0.885	201
July 7.....	A. H. Davison.....	1.150	0.835	197
July 26.....	A. H. Davison.....	1.510	1.140	216
July 27.....	A. H. Davison.....	1.491	1.131	208
Sept. 8.....	A. H. Davison.....	1.580	1.040	193
Sept. 27.....	A. H. Davison.....	1.650	1.090	193
Oct. 13.....	A. H. Davison.....	1.630	1.135	198
Oct. 31.....	E. D. Burchard.....	1.640	1.090	251
Nov. 1.....	E. D. Burchard.....	1.680	1.162	257
Nov. 1.....	E. D. Burchard.....	1.689	1.172	254
Nov. 1.....	E. D. Burchard.....	1.708	1.108	254
Nov. 1.....	E. D. Burchard.....	1.700	1.160	254
Nov. 23.....	A. H. Davison.....	1.240	0.930	149
June 2.....	O. W. Hartwell.....	1.100	.....	157
June 5.....	O. W. Hartwell.....	1.600	1.265	245
June 12.....	O. W. Hartwell.....	0.840	0.67	140

Daily discharge, in second-feet, of BLACK RIVER CANAL, FLOWING SOUTH, NEAR
BOONVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	186	215	207	190	251	.....	.....	.....	.....	.....	.....	a130
2.....	191	213	204	185	253	.....	.....	.....	.....	.....	.....	157
3.....	218	211	212	208	254	.....	.....	.....	.....	.....	.....	a170
4.....	214	215	214	202	249	.....	.....	.....	.....	.....	.....	a145
5.....	201	213	206	207	241	.....	.....	.....	.....	.....	.....	211
6.....	212	212	203	206	244	.....	.....	.....	.....	.....	.....	207
7.....	199	209	210	198	244	.....	.....	.....	.....	.....	.....	229
8.....	208	208	201	207	241	.....	.....	.....	.....	.....	.....	245
9.....	203	208	200	202	244	.....	.....	.....	.....	.....	.....	236
10.....	192	212	195	205	263	.....	.....	.....	.....	.....	.....	220
11.....	194	220	202	204	244	.....	.....	.....	.....	.....	.....	244
12.....	189	217	191	197	248	.....	.....	.....	.....	.....	.....	140
13.....	184	210	184	209	255	.....	.....	.....	.....	.....	.....	.....
14.....	192	213	189	191	262	.....	.....	.....	.....	.....	.....	.....
15.....	184	211	202	191	.....	.....	.....	.....	.....	.....	.....	.....
16.....	182	201	205	192	.....	.....	.....	.....	.....	.....	.....	.....
17.....	211	205	200	186	.....	.....	.....	.....	.....	.....	.....	.....
18.....	229	195	194	200	.....	.....	.....	.....	.....	.....	.....	.....
19.....	230	192	190	226	.....	.....	.....	.....	.....	.....	.....	.....
20.....	225	194	203	225	.....	.....	.....	.....	.....	.....	.....	.....
21.....	202	196	201	200	.....	.....	.....	.....	.....	.....	.....	.....
22.....	187	196	202	213	.....	.....	.....	.....	.....	.....	.....	.....
23.....	201	214	207	215	.....	.....	.....	.....	.....	.....	.....	177
24.....	227	213	201	215	.....	.....	.....	.....	.....	.....	.....	174
25.....	228	215	201	222	.....	.....	.....	.....	.....	.....	.....	177
26.....	215	215	195	228	.....	.....	.....	.....	.....	.....	.....	188
27.....	210	219	197	212	.....	.....	.....	.....	.....	.....	.....	184
28.....	228	220	181	236	.....	.....	.....	.....	.....	.....	.....	183
29.....	215	216	211	243	.....	.....	.....	.....	.....	.....	.....	181
30.....	211	215	202	234	.....	.....	.....	.....	.....	.....	.....	180
31.....	211	207	.....	250	.....	.....	.....	.....	.....	.....	.....	.....

a Estimated.

NOTE.—Mean discharge, November 15 to 30, inclusive, estimated as 166 second-feet; mean discharge, June 13 to 22, inclusive, estimated as 190 second-feet.

Monthly discharge of BLACK RIVER CANAL, FLOWING SOUTH, NEAR BOONVILLE, for the year ended June 30, 1917

MONTH	DISCHARGE IN SECOND-FEET		
	Maximum	Minimum	Mean
July.....	230	182	206
August.....	220	192	210
September.....	214	181	200
October.....	250	185	210
November.....	263	.....	205
December.....	.....	.....	.....
January.....	.....	.....	.....
February.....	.....	.....	.....
March.....	.....	.....	.....
April.....	.....	.....	.....
May.....	.....	.....	.....
June.....	245	130	189

BLACK RIVER NEAR FELTS MILLS

This station, originally established by the United States Geological Survey, August 29, 1902, is now maintained by this Department. During the summer of 1910 the timber dam formerly used was replaced by a masonry dam located a few rods downstream. The wood-pulp mill has been in operation since 1907.

Location.—Near the village of Felts Mills at the dam of the LeFebvre Paper Company, formerly owned by the Black River Traction Company. The dam is 9 miles upstream from Watertown and 7 miles upstream from the old Huntingtonville gaging station, formerly maintained on this stream.

Drainage area.—1,851 square miles.

Records available.—August 29, 1902, to June 30, 1917.

Gages.—The gage above the dam, located on the left bank of the stream about 100 feet upstream from the wheel racks and about the same distance above the crest of the dam, is a vertical enameled steel staff attached securely to the concrete wall, and steps provide access to the gage for reading. Lower gage is an enameled steel staff gage attached to a pile at the tail-race exit.

Discharge measurements.—Discharge over the spillway is calculated by means of the weir formula, using coefficients derived from experiments of the United States Geological Survey for a dam of similar cross-section. Discharge through the wheels is based on ratings furnished by the Paper Company.

Control.—Dam crest and power-wheels. The main crest of the dam is 300.45 feet long and 3.75 feet in width with a slope on the downstream face of about 1 on 1. There are two wings, one about 47 feet long and about 2.7 feet higher than the main crest, the other about 140 feet long and about 3 feet higher than the main crest. Flash-boards are used on the main crest. The mill contains four 72-in. and one 45-in. Smith turbines. A record is kept of the hours run, gate opening and head on each wheel.

Extremes of discharge.—Current year: Maximum stage recorded, April 4, 5 P. M., 21,700 second-feet. Minimum stage recorded, August 6, 280 second-feet.

1902-1917: Maximum stage recorded, March 28, 1913, at 5 P. M., estimated as 32,500 second-feet. Minimum stage recorded, August 26, 1907, 10 second-feet, due to artificial interruption of flow to fill pond at Herring.

Daily discharge, in second-feet, of BLACK RIVER NEAR FELTS MILLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2,420	1,190	1,190	2,610	1,550	5,940	2,110	2,680	2,690	12,400	7,570	6,390
2.....	1,840	981	1,150	2,250	1,670	6,510	2,040	2,430	2,760	14,400	7,250	5,970
3.....	1,320	1,240	908	2,050	1,910	7,070	2,120	2,590	2,770	17,400	7,890	4,690
4.....	1,760	1,240	516	1,780	1,990	5,000	2,190	2,220	2,700	21,400	8,220	4,380
5.....	4,290	1,240	1,150	1,650	1,960	5,000	2,050	2,610	2,790	20,300	7,890	3,830
6.....	3,340	280	1,060	1,320	2,050	5,230	2,050	2,450	2,800	18,200	7,250	3,460
7.....	2,940	927	1,240	1,220	2,480	6,090	2,250	2,320	2,620	15,800	7,090	3,470
8.....	2,420	1,200	1,220	1,130	2,120	6,230	3,090	2,250	2,320	13,700	6,530	4,020
9.....	2,820	1,240	1,290	607	2,120	6,370	3,510	2,040	2,410	12,200	5,700	5,130
10.....	1,390	1,640	1,120	1,280	2,190	6,080	3,690	2,240	2,120	9,590	5,580	5,970*
11.....	1,460	1,580	1,110	1,230	2,480	6,090	2,660	2,170	1,840	9,060	5,020	7,100
12.....	1,460	1,630	1,140	735	2,090	6,090	2,350	2,320	2,180	7,890	5,020	8,050
13.....	1,000	969	1,140	1,180	2,280	5,240	2,250	2,170	2,800	6,890	5,250	9,230
14.....	1,760	1,590	1,280	1,160	2,130	4,000	1,840	2,180	2,880	6,530	5,250	11,200
15.....	1,920	1,580	1,060	1,050	1,720	2,630	2,700	2,110	8,130	5,560	5,020	10,600
16.....	2,240	1,630	1,240	1,660	2,060	2,340	3,960	2,320	2,880	5,240	4,800	9,230
17.....	2,350	1,630	1,130	1,780	1,920	2,480	5,020	2,190	2,130	5,020	4,700	7,400
18.....	2,150	1,410	1,780	1,600	1,670	2,500	4,190	2,250	2,560	4,910	4,250	6,680
19.....	1,790	1,100	1,490	1,730	1,640	2,410	3,860	2,250	2,640	6,100	3,550	5,560
20.....	1,790	1,040	1,220	1,440	1,910	2,440	3,500	2,040	2,730	7,410	3,840	4,490
21.....	1,790	960	971	1,920	1,600	2,450	2,780	2,190	2,420	9,590	3,920	4,120
22.....	1,540	1,190	1,190	3,420	1,670	2,020	2,930	2,050	2,650	12,400	3,920	4,390
23.....	851	1,240	1,120	3,620	1,500	1,880	3,000	1,780	2,890	16,500	3,820	4,390
24.....	1,850	1,190	492	3,540	4,580	2,020	2,690	1,420	4,630	16,200	4,590	3,390
25.....	1,960	1,290	1,260	2,560	5,990	2,000	2,550	1,780	7,500	14,400	5,020	3,730
26.....	2,090	1,240	1,320	2,190	3,640	2,880	2,630	1,910	9,940	13,500	5,570	3,550
27.....	1,960	948	1,320	2,060	4,650	2,520	2,570	1,980	13,300	11,400	5,120	3,460
28.....	1,850	1,020	1,170	1,860	4,570	2,160	2,490	2,560	18,700	10,100	5,020	2,970
29.....	1,750	1,390	1,130	1,010	5,000	2,170	2,480	.....	20,000	9,050	5,020	2,810
30.....	881	1,240	1,490	1,670	5,690	2,030	2,700	.....	16,000	8,220	5,700	4,020
31.....	1,190	1,190	.....	1,440	.....	2,040	2,610	.....	13,900	.....	6,680	.....
Mean...	1,910	1,233	1,126	1,765	2,627	3,852	2,805	2,196	5,280	11,116	5,550	5,467

Monthly discharge of BLACK RIVER NEAR FELTS MILLS, for the year ended June 30, 1917

[Drainage area, 1,851 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	4,290	851	1,910	1.032	1.19
August.....	1,640	280	1,233	0.666	0.77
September.....	1,490	492	1,126	0.608	0.68
October.....	3,630	607	1,765	0.954	1.10
November.....	5,990	1,500	2,627	1.419	1.58
December.....	7,070	1,880	3,852	2.081	2.40
January.....	5,020	1,840	2,805	1.515	1.75
February.....	2,680	1,420	2,196	1.186	1.24
March.....	20,000	1,840	5,280	2.852	3.29
April.....	21,400	4,910	11,116	6.005	6.70
May.....	8,220	3,550	5,550	2.998	3.46
June.....	11,200	2,810	5,467	2.954	3.30
The year.....	21,400	280	3,742	2.022	27.4

BLACK RIVER AT BLACK RIVER

Location.—About $\frac{1}{4}$ mile below the concrete arch highway bridge and the power-plant of the Northern New York Utilities Company and about $\frac{3}{4}$ mile below the village of Black River, Jefferson county.

Drainage area.— Not measured.

Records available.— March 24 to June 30, 1917.

Gage.— Vertical staff, in two sections, spiked to large cedar tree on the left bank about $\frac{1}{4}$ mile below the highway bridge. Gage read by Erwin W. Hart.

Discharge measurements.— Made from a cable about 100 yards above the gage.

Channel and control.— Solid rock.

Extremes of discharge.— Maximum stage recorded during period of record, 13.4 feet from 6 P. M., April 4 to 7 A. M., April 5; discharge, 19,300 second-feet. Minimum stage recorded, 5.4 feet at 7:30 A. M. and 6 P. M., June 29; discharge, 2,860 second-feet.

Ice.— Stage-discharge relation probably not affected by ice.

Regulation.— Seasonal distribution of flow is regulated by Beaver river flow, Fulton Chain lakes and other storage reservoirs in the upper portion of the drainage basin. Some diurnal fluctuation at low stages due to mills and power-plants above the station.

Accuracy.— Stage-discharge relation permanent. Rating curve well defined between 500 and 19,000 second-feet. Gage read to

tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good except for days of low discharge, when they may be poor.

Discharge measurements of BLACK RIVER AT BLACK RIVER, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
April 1 <i>a</i>	A. H. Davison.....	10.78	12,600
April 1 <i>a</i>	A. H. Davison.....	10.83	12,800
April 6 <i>b</i>	A. H. Davison.....	12.66	17,300
April 7 <i>b</i>	A. H. Davison.....	12.21	16,400
April 7 <i>c</i>	A. H. Davison.....	11.96	15,300
April 11 <i>d</i>	A. H. Davison.....	9.16	9,090
June 7.....	O. W. Hartwell.....	5.83	3,460

a Measurements by subsurface method. Coefficient, 0.945

b Measurement by subsurface method. Coefficient, 0.93.

c Measurement by subsurface method. Coefficient, 0.935.

d Measurement by subsurface method. Coefficient, 0.953.

Daily discharge, in second-feet, of BLACK RIVER AT BLACK RIVER, for the year ended
June 30, 1917

DAY	Mar.	April	May	June	DAY	Mar.	April	May	June
1.....		12,600	7,990	6,700	16.....		5,180	4,870	9,990
2.....		14,600	7,610	6,180	17.....		5,030	4,870	8,180
3.....		17,300	8,180	5,350	18.....		5,030	4,250	7,060
4.....		19,300	8,570	5,190	19.....		6,180	3,950	6,010
5.....		19,000	8,370	4,250	20.....		6,860	3,530	4,710
6.....		17,600	7,990	3,670	21.....		9,780	3,670	4,100
7.....		15,800	7,610	3,530	22.....		12,600	4,100	4,400
8.....		13,800	6,880	4,250	23.....		16,000	4,250	4,710
9.....		12,000	6,180	5,510	24.....		15,800	4,870	4,250
10.....		9,990	5,510	6,180	25.....	8,370	14,600	5,510	3,530
11.....		9,170	5,350	7,610	26.....	10,600	13,400	5,840	3,530
12.....		8,180	5,510	8,570	27.....	13,800	11,500	5,840	3,120
13.....		7,240	5,670	9,170	28.....	17,300	10,400	5,670	3,120
14.....		6,700	5,840	11,500	29.....	18,100	9,370	5,670	2,860
15.....		6,010	5,350	11,500	30.....	16,000	9,570	5,670	3,670
					31.....	14,100		6,520	
					Mean..		10,400	5,860	5,750

Monthly discharge of BLACK RIVER AT BLACK RIVER, for the year ended June 30,
1917

MONTH	DISCHARGE IN SECOND-FEET		
	Maximum	Minimum	Mean
April.....	19,300	5,030	10,400
May.....	8,570	3,530	5,860
June.....	11,500	2,860	5,750

MOOSE RIVER

DESCRIPTION

Moose river is tributary to Black river at Lyons Falls, joining Black river just above the head of the fall of about 50 feet. The drainage of Moose river lies chiefly in Hamilton and Herkimer counties and comprises a wild, rugged and little inhabited region, largely forest-covered, but containing also large tracts of cut and burned-over lands and numerous and extensive swamps and lakes. The stream above the gaging station near McKeever comprises three main branches. The south branch is chiefly broad and sluggish. The area tributary to this branch contains extensive swamps and marshes and but few lakes, the most important lakes being the Limekill and Little Moose lakes. The middle branch is substantially a continuous chain of lakes, known as the Fulton Chain, extending from Old Forge a distance of about 15 miles upstream through eight different lakes. The outflow from Fulton Chain is artificially controlled by a State dam at Old Forge. The first to fourth lakes, inclusive, are at elevation 1,706 feet above tide. There is also a dam at the outlet of the sixth lake. Sixth, Seventh and Eighth lakes are at elevations 1,785 to 1,788 feet above tide. The north branch of the stream is made up of a large number of scattered lakes, the most important one being Big Moose lake. The lower course of the north branch is sluggish and tortuous. The drainage basin above McKeever is nearly all shown on the Big Moose, Raquette lakes, Old Forge and West Canada lakes sheets of the United States Geological Survey topographic maps.

MOOSE RIVER AT MOOSE RIVER

Location.— In the village of Moose River, Lewis county, about 3 miles downstream from McKeever, 5 miles below the mouth of South branch of Moose river and nearly 20 miles above the junction of Black and Moose rivers at Lyons Falls.

Drainage area.— 370 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.— June 5, 1900, to June 30, 1917.

Gage.— Staff in two sections, on the left bank a short distance above the cable. Read by Mrs. Martha Hannan. The gage datum was lowered 0.17 foot on February 28, 1903, and again 5.00 feet on January 1, 1913.

Discharge measurements.— Made from a cable a short distance below the gage.

Channel and control.— Cobblestone and boulders; fairly permanent. Current smooth, depth comparatively uniform. Just above the station is a small island, on which ice and logs occasionally jam.

Extremes of discharge.— Current year: Maximum stage recorded, 13.2 feet at 8 A. M., June 12; discharge, approximately 7,460 second-feet. Minimum stage recorded, 5.1 feet at 8 A. M., August 20, and 6 P. M., August 27; discharge, approximately 65 second-feet.

1900–1917: Maximum stage recorded, 16.3 feet during the afternoon of March 27, 1913, determined by leveling from flood-marks; discharge, approximately 16,500 second-feet. Minimum stage recorded, 4.94 feet, July 21, 23, 25, 26, and 27, 1913; discharge, 42 second-feet.

Ice.— Stage-discharge relation affected by ice.

Regulation.— A timber dam at McKeever, 3 miles upstream, is used for power and for the regulation of flow during log-driving. Seasonal distribution of flow affected by operation of the State dam at Old Forge. This regulation is indicated by a record from station, "Middle branch of Moose river at Old Forge."

Accuracy.— Stage-discharge relation practically permanent. Affected by ice for a large portion of the period from December to March, inclusive. Rating curve fairly well defined between 100 and 5,500 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results fairly good except for periods when the discharge is low or the stage-discharge relation is affected by ice. Results for latter periods fair.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Engineer and Surveyor.

Discharge measurements of MOOSE RIVER AT MOOSE RIVER, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		Feet	Sec.-ft.
July 25.....	A. H. Davison.....	7.40	880
Oct. 7.....	A. H. Davison.....	6.27	383
Oct. 11.....	A. H. Davison.....	6.08	331
Jan. 12 a.....	A. H. Davison.....	6.80	367
Feb. 9 a.....	A. H. Davison.....	7.02	333
Mar. 8 a.....	A. H. Davison.....	7.64	465
June 5.....	O. W. Hartwell.....	7.22	781

a Measurement made through complete ice cover.

Daily discharge, in second-feet, of MOOSE RIVER AT MOOSE RIVER, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	320	289	114	715	460	2,270	440	320	650	2,090	2,270	1,750
2.....	189	259	230	540	460	1,520	650	360	700	3,060	2,180	1,590
3.....	760	274	85	500	580	670	280	320	700	4,490	2,090	790
4.....	1,200	176	216	460	625	965	280	320	300	3,740	1,910	965
5.....	1,080	176	259	460	422	965	280	460	550	3,280	1,520	860
6.....	625	176	216	386	625	1,830	340	340	440	2,460	1,020	860
7.....	460	386	189	404	580	1,590	340	320	460	2,460	1,380	965
8.....	422	386	176	121	500	1,260	550	320	420	1,910	1,320	1,140
9.....	259	386	176	422	500	1,450	480	340	300	1,750	1,450	1,750
10.....	399	500	105	352	540	1,910	380	420	80	1,200	1,450	1,520
11.....	320	441	216	289	760	1,520	400	220	240	1,320	1,450	3,060
12.....	304	404	176	289	580	1,200	380	600	320	1,450	1,450	6,310
13.....	304	320	103	289	580	1,080	380	500	480	1,320	1,590	2,860
14.....	1,670	320	164	289	500	810	340	420	550	1,140	1,450	2,360
15.....	1,450	352	386	500	500	760	600	340	440	715	1,590	2,090
16.....	860	352	670	441	500	670	850	320	460	1,860	1,830	1,910
17.....	760	289	460	460	500	600	700	260	480	1,020	1,590	1,910
18.....	670	164	500	404	500	550	750	380	320	1,200	1,450	2,090
19.....	580	189	176	422	386	600	700	280	483	1,590	1,260	1,450
20.....	404	79	202	422	460	600	440	360	460	3,740	1,140	1,200
21.....	352	259	352	1,200	404	550	340	400	480	5,630	1,450	1,450
22.....	230	244	259	1,320	460	400	460	460	480	5,320	1,260	1,320
23.....	500	176	202	965	386	420	460	420	500	4,230	1,140	1,140
24.....	965	69	289	760	2,270	340	420	380	700	3,620	1,260	580
25.....	760	103	500	580	2,660	130	400	220	750	3,060	1,380	965
26.....	625	121	369	404	1,080	480	340	550	950	2,660	1,520	860
27.....	460	164	369	422	910	340	380	480	1,200	2,560	810	1,020
28.....	441	202	352	500	860	380	160	500	2,660	2,180	1,450	860
29.....	274	79	386	336	810	340	300	.....	2,560	1,590	1,750	810
30.....	117	117	910	460	1,670	400	340	.....	2,270	2,000	2,460	760
31.....	352	103	.....	460	.....	220	300	.....	2,000	.....	2,180	.....
Mean....	583	244	294	502	736	865	434	379	754	2,450	1,550	1,570

NOTE.—Discharge, December 17 to March 27, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of MOOSE RIVER AT MOOSE RIVER, for the year ended June 30, 1917

[Drainage area, 370 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,670	117	583	1.58	1.82
August.....	500	69	244	0.659	0.76
September.....	910	85	294	0.795	0.89
October.....	1,320	121	502	1.36	1.57
November.....	2,660	386	736	1.99	2.22
December.....	2,270	130	865	2.34	2.70
January.....	850	160	434	1.17	1.35
February.....	600	220	379	1.02	1.06
March.....	2,660	80	754	2.04	2.35
April.....	5,630	715	2,450	6.62	7.39
May.....	2,460	810	1,550	4.20	4.84
June.....	6,310	580	1,570	4.25	4.74
The year.....	6,310	69	864	2.34	31.69

NOTE.—The figures in the above table indicate the run-off as regulated by the operation of sluice-gates at Old Forge dam.

MIDDLE BRANCH OF MOOSE RIVER AT OLD FORGE

Location.—About 300 feet below the highway bridge and 400 feet below the State dam in Old Forge, Herkimer county.

Drainage area.—51.5 square miles. (Measured on U. S. G. S. topographic maps).

Records available.—November 9, 1911, to June 30, 1917.

Gage.—Vertical staff on left bank, 300 feet below highway bridge. Gage read by Jacob Edick.

Discharge measurements.—Made by wading near the gage at low and medium stages and from the highway bridge at high stages.

Channel and control.—Channel, stone and gravel near the gage. Control is rock ledge about 200 feet below gage, practically permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 3.9 feet at 8 A. M. and 5 P. M., June 16 (stage-discharge relation affected by backwater from Moose river); maximum discharge, computed from records at Old Forge dam, 405 second-feet. Minimum stage occurs when the gates of dam are closed,

discharge being due to leakage and discharge through the fish hatchery.

1911-1917: Maximum stage recorded, 6.3 feet (stage-discharge relation affected by backwater from Moose river) on March 28, 1913. Discharge, computed from records at dam, 760 second-feet.

Ice.— Stage-discharge relation not affected by ice.

Regulation.— Flow controlled at dam.

Accuracy.— Stage-discharge relation assumed to be permanent. Not affected by ice. Rating curve well defined from 20 to 400 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying to the rating table mean daily gage heights weighted on days of changing gates, from records of gate opening at dam. Results good, excepting for periods during which they are computed from gate openings at the dam, when they are fair.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of MIDDLE BRANCH OF MOOSE RIVER AT OLD FORGE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 24 a.....	A. H. Davison	0.86	22.4
July 24 a.....	A. H. Davison	2.18	153
July 24 a.....	A. H. Davison	2.61	228
April 18 a.....	A. H. Davison	0.33	2.88
April 18.....	A. H. Davison	3.35	426
April 18.....	A. H. Davison	3.35	443
June 5 a.....	O. W. Hartwell.....	1.15	23.3

a Measurement made by wading.

Daily discharge, in second-feet, of MIDDLE BRANCH OF MOOSE RIVER AT OLD FORGE
for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	30	37	75	165	135	30	44	75	142	207	198	142
2.....	30	37	75	165	135	35	45	75	142	198	198	26
3.....	165	37	75	165	135	35	46	75	142	196	198	26
4.....	200	37	75	165	135	32	47	75	142	194	150	27
5.....	92	37	75	165	135	33	49	75	142	193	26	67
6.....	40	37	75	165	135	37	51	75	142	192	32	200
7.....	40	60	75	165	135	47	52	75	142	190	43	200
8.....	40	143	75	165	135	53	56	75	142	190	59	180
9.....	40	143	75	157	135	58	55	75	135	190	150	80
10.....	40	143	80	142	115	60	56	75	135	190	207	225
11.....	40	143	75	142	80	60	56	75	135	190	207	307
12.....	40	143	116	150	80	62	58	70	135	190	207	405
13.....	66	136	165	150	80	55	60	70	135	190	207	405
14.....	232	136	165	150	80	45	70	70	135	190	207	405
15.....	232	136	165	150	80	40	70	70	135	190	205	405
16.....	206	70	165	142	80	40	70	69	135	190	165	405
17.....	181	54	165	142	80	40	70	68	135	182	125	405
18.....	98	54	165	142	80	40	70	122	135	182	185	307
19.....	35	70	165	142	75	40	70	165	135	182	97	173
20.....	35	75	165	150	80	40	70	157	135	182	26	182
21.....	35	75	165	150	80	40	75	157	135	180	26	182
22.....	35	75	165	150	38	41	75	157	165	190	30	182
23.....	35	75	165	142	24	42	75	150	182	210	40	182
24.....	37	75	165	142	26	43	75	150	182	220	59	190
25.....	39	75	165	142	27	43	75	142	182	223	182	190
26.....	38	75	165	142	28	43	75	142	182	225	200	190
27.....	38	75	165	142	28	43	75	142	182	225	200	182
28.....	37	75	165	142	28	43	75	142	182	225	200	182
29.....	37	75	165	142	28	43	75	.....	190	225	200	182
30.....	37	75	165	142	29	43	75	.....	198	207	200	182
31.....	37	75	.....	142	.....	44	75	.....	198	.....	225	.....
Mean...	76.4	82.5	131	150	83.0	43.5	64.2	102	153	198	142	213

NOTE.—Discharge, April 3 to 8 and 21 to 26, May 14, 15 and 26 to 30, and June 6, 7 and 12 to 17, all inclusive, estimated, because of backwater from Moose river and logs on the control, from records at the Old Forge dam.

Monthly discharge of MIDDLE BRANCH OF MOOSE RIVER AT OLD FORGE, for the
year ended June 30, 1917

Drainage area, 51.5 square miles;

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	260	30	76.4	1.48	1.71
August.....	143	37	82.5	1.60	1.84
September.....	165	75	131	2.54	2.83
October.....	165	142	150	2.91	3.36
November.....	135	24	83.0	1.61	1.80
December.....	62	30	43.5	0.845	0.97
January.....	75	44	64.2	1.25	1.44
February.....	165	68	102	1.98	2.06
March.....	198	135	153	2.97	3.42
April.....	225	180	198	3.84	4.28
May.....	225	26	142	2.76	3.18
June.....	405	26	213	4.14	4.62
The year.....	405	24	120	2.33	31.51

NOTE.—The figures in the above table indicate the flow of the river as regulated at the Old Forge dam.

BEAVER RIVER

East pond, at elevation about 1,956 feet, situated in the lake region of northern Hamilton county, may be said to be the headwaters of Beaver river. This pond is connected by a series of lakes, brooks and swamps with Beaver river flow, which is drained by Beaver river proper, all flowing in a general westerly direction. Razorback pond in Herkimer county is probably the highest body of water draining into Beaver river, being at elevation about 2,200.

From East pond to the junction of Beaver and Black rivers, about eight miles above Carthage, there is a total fall of about 1,200 feet in a distance of about 60 miles.

The principal tributary, Twitchell creek, having its source in Twitchell lake, near Big Moose lake, flows in a general north-westerly direction, emptying into Beaver river flow about $3\frac{1}{2}$ miles above the State dam.

BEAVER RIVER AT STATE DAM, NEAR BEAVER RIVER

Location.—At the concrete storage dam, at the outlet of Beaver river flow, about $7\frac{1}{2}$ miles west of Beaver River P. O., Herkimer county, and 7 miles above Beaver lake at Number Four.

Drainage area.—176 square miles. (Measured on United States Geological Survey topographic maps.)

Records available.—May 11, 1908, to June 30, 1917.

Gages.—Elevation of water-surface in the reservoir is determined by a staff gage in two sections, on the westerly corner of the gate-house; read once a day. The mean elevation of the crest of the spillway at gage height is 16.96 feet.

Prior to September 28, 1913, this elevation was determined by measuring the distance from the water-surface to a reference point, which had been set at the elevation of the crest of the spillway.

Widths of sluice-gate openings determined by measuring on the gate stems the distance they have been raised.

Discharge measurements.—Current-meter measurements made from a temporary foot-bridge at the mouth of the outlet tunnel.

below the gates. Discharge over the spillway has not been measured.

Discharge ratings.—Records include the discharge through one or more of four 4-foot circular sluice-gates, when opened, the discharge over the spillway and the discharge through the logway at the westerly end of the spillway.

The sluice-gates have been rated by current-meter measurements made at different lake elevations, but no measurements have been made of the discharge over the spillway or through the logway. Theoretic coefficients based on the Cornell Experiments* have been used to compute ratings for the spillway and logway.

Extremes of stage.—Current year: Maximum elevation of water-surface recorded in reservoir, 18.8 feet on April 22. Minimum stage recorded, 4.5 feet on October 19.

1908–1917: Maximum elevation of water-surface in reservoir, 19.46 feet on March 29, 1913. Minimum stage, 2.9 feet on September 29 and October 1, 1913.

Extremes of discharge.—Current year: Maximum daily discharge, 1,960 second-feet on April 23. Minimum discharge, zero during periods when gates were closed and there was no flow over spillway.

1908–1917: Maximum discharge, 3,296 second-feet on May 2, 1911.

Regulation.—At ordinary stages the discharge of Beaver river is completely regulated by the operation of the sluice-gates.

Accuracy.—The accuracy of these estimates depends, to a large extent, on the care with which the gates were set to the recorded openings. For periods when the water was flowing over the spillway it also depends on the care with which the elevation of the water-surface in the reservoir was determined. Probably the estimates as a whole are fairly good.

Coöperation.—Gaging station maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

*United States Geological Survey Water-supply paper 200.

Discharge measurements of BEAVER RIVER AT STATE DAM, during the year ended
June 30, 1917

DATE	Made by	GATE		Gage height	Discharge
		No.	Opening		
			<i>Inches</i>	<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 11.....	O. W. Hartwell.....	1	12	15.15	74.4
Aug. 11.....	O. W. Hartwell.....	1	24	15.15	149
Aug. 11.....	O. W. Hartwell.....	1	36	15.15	205
Aug. 11.....	O. W. Hartwell.....	1	44½	15.15	236
Aug. 11.....	O. W. Hartwell.....	4	12	15.15	77.1
Aug. 11.....	O. W. Hartwell.....	4	24	15.15	136
Aug. 12.....	O. W. Hartwell.....	4	48	15.05	234
Aug. 12.....	O. W. Hartwell.....	4	36	15.05	199
Aug. 12.....	O. W. Hartwell.....	3	24	15.05	142
Aug. 12.....	O. W. Hartwell.....	3	12	15.05	73.6
Aug. 12.....	O. W. Hartwell.....	4	12	15.10	75.5
Aug. 12.....	O. W. Hartwell.....	4	24	15.10	144
Oct. 10.....	A. H. Davison.....	4	48	6.22	131
Oct. 10.....	A. H. Davison.....	4	36	6.22	118
Oct. 10.....	A. H. Davison.....	4	24	6.24	99.8
Oct. 10.....	A. H. Davison.....	4	12	6.28	51.2
Oct. 10.....	A. H. Davison.....	1	12	6.36	52.8
Oct. 10.....	A. H. Davison.....	1	24	6.39	98.0
Oct. 10.....	A. H. Davison.....	1	36	6.40	123
Oct. 10.....	A. H. Davison.....	1	45	6.39	137
Oct. 10.....	A. H. Davison.....	8	12	6.39	50.5
Oct. 10.....	A. H. Davison.....	8	24	6.42	95.6
Oct. 11.....	A. H. Davison.....	8	36	5.50	118

NOTE.— All measurements were made from temporary bridge at mouth of tunnel.

Daily gage height, in feet, of RESERVOIR ABOVE STATE DAM, NEAR BEAVER RIVER,
for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	17.4	16.3	12.1	7.9	5.4	10.8	14.35	13.7	11.3	15.2	18.05	17.7
2.....	17.45	16.1	12.0	7.8	5.5	11.1	14.3	13.7	11.2	15.7	18.1	17.7
3.....	17.55	16.0	11.9	7.6	6.2	11.2	14.3	13.65	11.1	17.0	18.0	17.7
4.....	17.55	15.9	11.7	7.4	6.3	11.6	14.25	13.6	11.1	18.2	18.0	17.7
5.....	17.5	15.7	11.6	7.2	7.1	12.0	14.15	13.55	11.1	18.3	18.0	17.7
6.....	17.5	15.6	11.4	7.0	7.5	12.6	14.25	13.5	11.1	18.3	17.9	17.65
7.....	17.45	15.45	11.25	6.9	7.6	12.8	14.1	13.45	11.1	18.3	17.9	17.65
8.....	17.4	15.4	11.1	6.7	7.7	13.0	14.0	13.4	11.1	18.1	17.85	17.65
9.....	17.4	15.45	11.0	6.5	7.7	13.4	13.9	13.35	10.95	18.05	17.85	17.7
10.....	17.3	15.2	10.7	6.25	7.9	13.9	13.85	13.3	10.95	18.0	17.85	17.75
11.....	17.3	15.35	10.6	5.5	8.1	14.1	13.8	13.2	10.95	18.05	17.85	17.9
12.....	17.3	15.05	10.4	5.5	8.3	14.4	13.75	13.05	10.95	17.9	17.85	18.3
13.....	17.3	15.0	10.2	5.5	8.45	14.6	13.7	12.9	11.0	17.9	17.85	18.4
14.....	17.25	14.9	10.0	5.5	8.6	14.7	13.65	12.8	11.0	17.9	17.8	18.2
15.....	17.25	14.75	9.8	5.2	8.6	14.75	13.4	12.75	11.0	17.85	17.75	18.0
16.....	17.3	14.5	9.6	5.0	8.65	14.8	13.5	12.7	11.0	17.8	17.7	18.0
17.....	17.3	14.4	9.7	4.8	8.65	14.9	13.65	12.7	11.0	17.55	17.7	17.9
18.....	17.3	14.35	9.5	4.75	8.6	14.85	13.75	12.6	11.0	17.5	17.7	17.85
19.....	17.3	14.25	9.3	4.5	8.6	14.85	14.0	12.5	11.0	17.55	17.7	17.85
20.....	17.3	14.0	9.1	4.65	8.6	14.8	14.1	12.35	11.0	18.2	17.65	17.85
21.....	17.3	13.9	8.9	4.9	8.5	14.8	14.1	12.1	11.1	18.7	17.65	17.7
22.....	17.15	13.7	8.7	5.55	8.45	14.75	14.05	11.95	11.1	18.8	17.6	17.75
23.....	17.15	13.6	8.6	5.9	8.4	14.75	14.0	11.75	11.15	18.75	17.6	17.75
24.....	17.15	13.4	8.4	6.3	8.8	14.7	13.9	11.65	11.2	18.65	17.65	17.7
25.....	17.1	13.3	8.2	6.2	9.3	14.65	13.8	11.6	11.25	18.3	17.8	17.7
26.....	17.1	13.2	8.0	6.1	9.7	14.4	13.85	11.5	11.3	18.2	17.8	17.65
27.....	16.9	13.0	7.9	6.15	10.0	14.5	13.7	11.5	11.9	18.15	17.85	17.6
28.....	16.8	12.8	7.7	6.0	10.1	14.6	13.65	11.4	12.7	18.10	17.8	17.6
29.....	16.7	12.65	7.8	5.75	10.3	14.6	13.65	.....	13.5	18.05	17.8	17.6
30.....	16.5	12.45	7.9	5.6	10.5	14.55	13.65	.....	14.1	18.05	17.75	17.65
31.....	16.4	12.3	.....	5.45	.....	14.4	13.7	.....	14.7	.....	17.7	.....

Gate openings, in inches, at STATE DAM ON BEAVER RIVER, NEAR BEAVER RIVER,
for the year ended June 30, 1917

DATE	GATE			
	1	2	3	4
	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
July 20 to 25, inclusive.....	.....	.....	.....	24
July 26 to April 17, inclusive.....	.....	.....	.....	48
April 18 (gates open 12 hours).....	48	.....	.....	48
April 19 and 20 (gates open 12 hours).....	48	.....	48	48
April 22 to 24 (noon), inclusive.....	.....	.....	.....	48
April 24 (noon) to 29 (noon), inclusive.....	.....	.....	.....	24
April 29 (noon) to May 6 (noon), inclusive.....	.....	.....	.....	18

Monthly discharge of BEAVER RIVER AT STATE DAM, NEAR BEAVER RIVER, for the
year ended June 30, 1917

[Drainage area, 176 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	324	111	212	1.21	1.40
August.....	251	225	241	1.37	1.58
September.....	223	163	195	1.11	1.24
October.....	167	93	126	0.716	0.83
November.....	206	113	172	0.977	1.09
December.....	244	210	237	1.35	1.56
January.....	241	234	238	1.35	1.56
February.....	237	216	228	1.30	1.35
March.....	243	212	216	1.23	1.42
April.....	1,060	246	1,060	6.14	6.85
May.....	1,010	368	588	3.34	3.85
June.....	1,260	368	562	3.19	3.56
The year.....	1,960	93	340	1.93	26.29

NOTE.—The figures in the above table indicate the flow of the Beaver river as regulated by the sluice-gates and logway at the dam.

ST. LAWRENCE RIVER DRAINAGE BELOW LAKE ONTARIO OSWEGATCHIE RIVER

DESCRIPTION

Oswegatchie river rises in Cranberry lake and the mountains to the southwest in St. Lawrence and Jefferson counties, whence it flows in a general northerly direction into the St. Lawrence river at Ogdensburg, where its drainage area is 1,609 square miles. The river is formed by the junction of the east branch of Oswegatchie river and the west branch of the Oswegatchie river at Taleville and its main tributary below this point is Indian river, which flows through Black lake. Considerable power is developed along all three of these main tributaries and many of the power sites in the lower reaches of the river have also been developed.

OSWEGATCHIE RIVER NEAR HEUVELTON

Location.— $2\frac{1}{2}$ miles above Heuvelton, St. Lawrence county, 3 miles below Rensselaer Falls and 7 miles above mouth of Indian river (outlet to Black lake).

Drainage area.—961 square miles. (Measured on U. S. G. S. topographic maps and U. S. G. S. map of state of New York.)

Records available.—June 23, 1916, to June 30, 1917.

Gage.—Gurley 7-day water-stage recorder on the right bank, about $2\frac{1}{2}$ miles above Heuvelton, installed September 16, 1916. Prior to this date gage height was determined by measuring the distance from a reference point to the water-surface. Recorder inspected by George Todd.

Discharge measurements.—Made from a cable just above the gage.

Channel and control.—Solid rock.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 7.6 feet from 9 A. M. to 12 noon, March 30; discharge, 11,700 second-feet. Minimum stage observed by measuring from reference point to water-surface, 0.44 foot several times in August and September; discharge not computed.

Ice.— Stage-discharge relation slightly affected by ice.

Regulation.— Some diurnal fluctuation due to mills at Rensselaer Falls and above. Seasonal flow regulated by storage in Cranberry lake.

Accuracy.— Stage-discharge relation permanent. Rating curve well defined between 400 and 15,000 second-feet. Stage-discharge relation affected by ice during a portion of the period from January to March. The operation of water-stage recorder satisfactory during the year. Daily discharge ascertained by applying mean daily gage height to rating table. Results good except for period when the stage-discharge relation was effected by ice, when results were fairly good.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of OSWEGATCHIE RIVER NEAR HEUVELTON, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 24 <i>a</i>	E. D. Burchard	1.17	418
Sept. 10 <i>a</i>	A. H. Davison	0.99	340
Sept. 17 <i>a</i>	A. H. Davison	0.89	325
Nov. 27	A. H. Davison	2.00	1,190
Jan. 16 <i>b</i>	A. H. Davison	2.15	1,320
Feb. 14 <i>b</i>	A. H. Davison	1.72	698
Mar. 12 <i>b</i>	A. H. Davison	1.99	995
Mar. 30	A. H. Davison	7.60	11,600
Mar. 30	A. H. Davison	7.59	11,700
April 5	A. H. Davison	5.51	6,870
April 9	A. H. Davison	4.48	4,880
April 13	A. H. Davison	2.95	2,300

a Measurement made by wading.

b Measurement made through partial ice cover.

Daily discharge, in second-feet, of OSWEGATCHIE RIVER NEAR HEUVELTON, for the thirteen months ended June 30, 1917

DAY	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....		881	662	485	414	570	1,230	734	1,000	1,060	9,700	1,840	1,980
2.....		836	622	459	409	548	1,300	710	1,100	1,300	8,100	1,980	1,840
3.....		881	622	478	479	541	1,320	710	1,100	1,400	7,050	2,180	1,690
4.....		836	548	440	694	608	1,310	678	1,100	1,300	6,850	2,320	1,510
5.....		746	387	145	686	710	1,230	719	1,100	1,300	6,850	2,110	1,410
6.....		746	387	180	646	818	1,230	890	1,000	1,300	6,850	2,180	1,410
7.....		746	446	478	585	836	1,510	1,120	950	1,300	6,250	2,040	1,300
8.....		702	446	499	534	791	1,840	1,410	850	1,100	5,860	1,910	1,290
9.....		662	478	478	485	746	1,910	1,490	800	1,100	4,920	1,840	1,370
10.....		622	478	446	452	737	1,910	1,480	750	1,100	4,040	1,730	1,600
11.....		622	478	478	466	710	2,040	1,400	700	1,100	3,370	1,630	3,590
12.....		662	548	360	459	719	2,180	1,400	650	1,000	2,750	1,580	4,920
13.....		622	622	414	446	845	2,180	1,400	650	1,000	2,390	1,680	4,920
14.....		622	662	414	426	854	1,910	1,300	600	1,000	2,180	1,910	4,650
15.....		585	622	446	392	764	1,650	1,300	600	1,100	1,910	1,960	4,300
16.....		622	548	392	382	728	1,410	1,300	650	1,100	1,720	1,980	3,700
17.....		662	513	340	433	854	1,240	1,360	750	1,100	1,540	1,840	3,130
18.....		746	548	398	578	662	1,240	1,400	800	1,100	1,400	1,630	2,600
19.....		836	548	325	600	654	1,140	1,300	750	1,500	1,320	1,550	2,180
20.....		928	513	340	578	608	890	1,200	750	1,500	1,430	1,330	1,910
21.....		881	548	376	638	662	881	1,100	650	1,100	1,910	1,230	1,580
22.....		881	478	375	686	630	893	1,000	700	1,500	2,600	1,140	1,410
23.....	1,550	836	446	375	773	615	863	900	750	2,460	3,210	1,260	1,330
24.....	1,430	836	472	376	900	670	836	800	700	5,670	3,370	1,250	1,230
25.....	1,340	836	414	376	947	702	800	750	600	8,540	3,210	1,430	1,120
26.....	1,170	791	414	400	918	893	800	800	600	11,000	2,820	1,680	985
27.....	1,130	702	404	452	835	1,196	755	800	700	11,460	2,530	1,730	909
28.....	1,080	746	409	440	752	1,310	710	800	900	11,200	2,390	1,840	947
29.....	1,080	702	340	466	670	1,370	702	850	.....	11,400	2,180	1,690	909
30.....	1,020	662	433	440	646	1,300	782	900	.....	11,700	2,040	1,910	928
31.....		746	466	.....	570	.....	758	950	.....	11,000	.....	2,040	.....
Mean.....		748	500	403	596	788	1,270	1,060	795	3,500	3,760	1,760	2,090

NOTE.— Discharge from January 11 to March 24 determined, because of ice, from discharge measurements, weather records, study of gage height graph and comparison with open-water records at Harrisville

Monthly discharge of OSWEGATCHIE RIVER NEAR HEUVELTON, for the year ended June 30, 1917

[Drainage area, 961 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	928	585	748	0.779	0.90
August.....	662	340	500	0.520	0.60
September.....	499	145	403	0.419	0.47
October.....	947	382	596	0.620	0.71
November.....	1,370	541	788	0.820	0.91
December.....	2,180	702	1,270	1.32	1.52
January.....	1,400	678	1,060	1.10	1.27
February.....	1,100	600	795	0.828	0.88
March.....	11,700	1,000	3,590	3.73	4.30
April.....	9,700	1,360	3,760	3.91	4.36
May.....	2,320	1,140	1,760	1.83	2.11
June.....	4,920	909	2,090	2.17	2.42
The year.....	11,700	145	1,450	1.51	20.43

OSWEGATCHIE RIVER NEAR OGDENSBURG

Location.—At the steel highway bridge, locally known as Eel Weir bridge, about 1 mile below the mouth of Black lake and 5½ miles above the city of Ogdensburg, St. Lawrence county, and mouth of river.

Drainage area.—1,580 square miles.

Records available.—April 22, 1903, to December 1, 1916, when the station was discontinued.

Gage.—Chain, near center of right span, upstream side of bridge. Gage read by J. H. La Rue.

Discharge measurements.—Made from the bridge or by wading.

Channel and control.—Channel under bridge solid rock and partially artificial, the ledge underneath bridge having been removed by blasting to increase the bridge opening.

Extremes of discharge.—Current period, July 1 to December 1: Maximum stage recorded, 5.4 feet at 8 A. M. and 5 P. M., July 1; discharge, 2,100 second-feet. Minimum stage recorded, 4.3 feet several times in September; discharge, 390 second-feet.

1903–1917: Maximum stage recorded, 9.9 feet, March 31, 1913; discharge, 18,000 second-feet. Minimum stage recorded, 4.5 feet at 5 A. M., June 9, to 5 P. M., June 10, 1915; discharge, 295 second-feet.

Ice.—Stage-discharge relation not affected by ice.

Regulation.—There may be some diurnal fluctuation caused by two dams in the vicinity of the gage, one at Heuvelton, about 5 miles above, and one at Rensselaer Falls, 10 miles above. Seasonal distribution of flow affected by artificial storage in Cranberry lake reservoir and natural storage in Black lake.

Accuracy.—Stage-discharge relation assumed to be permanent between dates of shifting. Not affected by ice. Rating curves poorly defined. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean gage heights to rating table.

Coöperation.—Station maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurement of OSWEGATCHIE RIVER NEAR OGDENSBURG, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 18.....	A. H. Davison.....	4.34	441
Sept. 18.....	A. H. Davison.....	4.35	446

NOTE.— Measurement made by wading.

Daily discharge, in second-feet, of OSWEGATCHIE RIVER NEAR OGDENSBURG, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	DAY	July	Aug.	Sept.	Oct.	Nov.
1.....	2,100	1,010	500	390	750	16.....	1,440	646	390	620	775
2.....	1,900	965	412	390	820	17.....	1,200	685	478	724	750
3.....	1,900	890	412	445	750	18.....	1,200	620	390	620	778
4.....	1,710	890	445	500	724	19.....	1,280	620	445	596	750
5.....	1,710	820	412	524	646	20.....	1,360	620	390	620	862
6.....	1,620	724	390	524	685	21.....	1,360	620	445	820	890
7.....	1,530	685	390	500	750	22.....	1,280	620	390	724	890
8.....	1,360	724	390	685	750	23.....	1,200	620	390	620	890
9.....	1,280	724	390	620	965	24.....	1,170	646	390	596	1,360
10.....	1,360	750	390	560	890	25.....	1,170	620	390	620	890
11.....	1,440	685	390	560	778	26.....	1,010	524	390	862	920
12.....	1,440	685	412	596	724	27.....	965	500	390	750	965
13.....	1,440	685	390	620	750	28.....	1,040	478	390	750	965
14.....	1,200	820	390	560	778	29.....	965	445	390	750	1,040
15.....	1,200	750	390	560	820	30.....	1,040	412	412	750	1,040
						31.....	1,040	478	.....	724	.....
						Mean....	1,350	676	406	619	845

Monthly discharge of OSWEGATCHIE RIVER NEAR OGDENSBURG, for the year ended June 30, 1917

[Drainage area, 1,580 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	2,100	965	1,350	0.854	0.98
August.....	1,010	412	676	0.428	0.49
September.....	500	390	406	0.257	0.29
October.....	862	390	619	0.392	0.45
November.....	1,360	646	845	0.535	0.60

NOTE.— Figures in the above table indicate the flow as regulated at Cranberry lake.

EAST BRANCH OF OSWEGATCHIE RIVER AT NEWTON FALLS

Location.— 600 feet below the lower dam of the Newton Falls Paper Company in the village of Newton Falls, St. Lawrence county, 4 miles above the mouth of Little river and 10 below the outlet of Cranberry lake.

Drainage area.—166 square miles. (Measured by engineers of the New York State Conservation Commission.)

Records available.—October 6, 1912, to June 30, 1917.

Gage.—Vertical staff on left bank about 600 feet below the lower dam. Gage read by Alfred Renaud.

Discharge measurements.—Made by wading at low stages and from a cable 30 feet above gage at high stages.

Channel and control.—Small boulders and rock, covered with waste from the pulp-mill.

Extremes of discharge.—Current year: Maximum stage recorded, 3.8 feet at 6:30 P. M., June 12 and 14; discharge, 894 second-feet. Minimum stage is reached only every Sunday during low-water period, when paper-mills shut down.

1912–1917: Maximum stage recorded, 6.1 feet at 5.15 P. M., March 28, 1913; discharge, 2,200* second-feet.

Ice.—Stage-discharge relation affected by ice only for short periods during extreme cold.

Regulation.—Some diurnal fluctuation in flow caused by the paper-mills. Seasonal flow largely controlled by storage at Cranberry lake.

Accuracy.—Stage-discharge relation practically permanent. Not affected by ice during year. Rating curve well defined between 20 and 1,200 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying to the rating table weighted mean gage heights based on observer's notes concerning operation of paper-mills. Results good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

*Supersedes value previously published.

Discharge measurements of OSWEGATCHIE RIVER AT NEWTON FALLS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 4.....	A. H. Davison.....	0.65	76
Sept. 24.....	A. H. Davison.....	0.26	35.
Jan. 18 a.....	A. H. Davison.....	1.83	282

a Measurement made through partial ice cover.

Daily discharge, in second-feet, of EAST BRANCH OF OSWEGATCHIE RIVER AT NEWTON FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	223	350	262	119	262	350	223	304	262	242	460	350
2.....	196	304	262	282	326	350	350	282	223	282	402	402
3.....	106	304	140	326	304	223	350	326	148	350	460	300
4.....	81	326	223	304	326	350	304	75	99	402	588	376
5.....	304	350	304	188	93	376	262	262	205	376	658	376
6.....	304	196	262	262	223	376	223	350	282	350	554	350
7.....	223	262	282	262	304	376	171	282	304	402	554	350
8.....	223	350	282	304	242	376	242	242	223	262	588	402
9.....	112	304	282	262	326	350	326	155	196	350	588	350
10.....	171	304	140	282	326	242	304	171	205	326	460	300
11.....	205	304	205	262	350	376	304	282	223	304	402	490
12.....	282	326	282	262	99	460	262	350	196	350	402	894
13.....	376	133	223	262	350	430	326	402	171	350	326	852
14.....	402	282	205	242	304	402	155	402	242	282	522	852
15.....	350	350	196	148	262	402	262	376	242	205	588	810
16.....	282	262	223	223	326	402	304	196	282	242	460	810
17.....	402	223	133	350	326	99	304	180	223	223	402	350
18.....	350	262	196	326	326	304	304	282	126	242	350	376
19.....	326	223	242	350	155	402	304	304	223	304	402	522
20.....	304	119	262	326	326	402	148	205	205	326	304	430
21.....	304	223	262	262	350	402	140	223	188	554	350	402
22.....	304	223	242	196	326	402	282	205	262	460	326	402
23.....	140	242	304	304	326	350	304	163	326	554	315	402
24.....	402	262	87	304	350	99	304	112	326	460	304	300
25.....	460	304	350	350	376	126	326	54	140	376	262	376
26.....	460	262	282	304	188	588	304	242	262	376	350	402
27.....	376	112	223	326	326	376	304	326	460	350	304	376
28.....	376	205	262	304	350	376	75	304	460	376	460	304
29.....	490	242	304	81	402	350	262	....	430	350	460	205
30.....	148	223	326	196	376	326	350	....	402	460	304	304
31.....	402	262	....	223	....	112	326	....	376	....	402	....
Mean...	293	261	242	264	298	340	271	252	255	350	429	447

NOTE.—Records not affected by ice. Discharge for the following days estimated because of no gage height records; May 23 and June 3, 10, 17 and 24.

Monthly discharge of EAST BRANCH OF OSWEGATCHIE RIVER AT NEWTON FALLS, for the year ended June 30, 1917

[Drainage area, 166 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	490	81	293	1.77	2.04
August.....	350	112	261	1.57	1.81
September.....	350	87	242	1.46	1.63
October.....	350	81	264	1.59	1.83
November.....	402	93	298	1.79	2.00
December.....	588	99	340	2.05	2.36
January.....	350	75	271	1.63	1.88
February.....	402	54	252	1.52	1.58
March.....	460	99	255	1.54	1.78
April.....	554	205	350	2.11	2.35
May.....	658	262	429	2.58	2.97
June.....	894	205	447	2.69	3.00
The year.....	894	54	309	1.86	25.23

NOTE.—Figures in the above table indicate the run-off as regulated by sluice-gates at Cranberry lake.

WEST BRANCH OF OSWEGATCHIE RIVER NEAR HARRISVILLE

Location.—At the highway bridge near Geers Corners, about 1½ miles downstream from Harrisville, Lewis county.

Drainage area.—245 square miles. (Measured on U. S. G. S. topographic maps and U. S. G. S. map of state of New York.)

Records available.—July 1, 1916, to June 30, 1917.

Gage.—Vertical staff in three sections on the right bank. One section, reading from 0.0 to 3.3 feet, about 25 feet below bridge, two sections, graduated from 3.3 to 10.1 feet, on downstream side of bridge abutment. Gage read by Frank Osborne.

Discharge measurements.—Made from a cable about 200 feet above the bridge or by wading.

Channel and control.—Rocky and rough; probably permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 8.1 feet at 6:30 A. M. and 6 P. M., March 28; discharge, 4,880 second-feet. Minimum stage recorded, 1.14 feet several times in August and September; discharge, 44 second-feet.

Ice.—Stage-discharge relation probably not affected by ice.

Regulation.—The pulp-mill at Harrisville causes some diurnal fluctuation.

Accuracy.—Stage-discharge relation practically permanent. Not affected by ice. Rating curve well defined between 50 and 4,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of WEST BRANCH OF OSWEGATCHIE RIVER NEAR HARRISVILLE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 3 a.....	A. H. Davison.....	2.15	212
July 27 a.....	A. H. Davison.....	1.97	162
Sept. 21 a.....	A. H. Davison.....	1.63	95.3
Sept. 22 a.....	A. H. Davison.....	1.31	59.1
Jan. 17 b.....	A. H. Davison.....	2.95	440
Feb. 12 b.....	A. H. Davison.....	1.82	128
Mar. 10 b.....	A. H. Davison.....	2.30	246
April 2.....	A. H. Davison.....	5.62	2,200
April 2.....	A. H. Davison.....	5.70	2,210
April 3.....	A. H. Davison.....	6.47	2,960
April 8.....	A. H. Davison.....	5.10	1,700
April 12.....	A. H. Davison.....	3.70	797
June 8.....	O. W. Hartwell.....	2.97	495

a Measurement made by wading.

b Measurement made through partial ice cover.

Daily discharge, in second-feet, of WEST BRANCH OF OSWEGATCHIE RIVER NEAR HARRISVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	208	63	63	370	135	560	208	440	335	1,960	650	650
2.....	195	74	63	290	182	560	220	440	370	2,130	600	560
3.....	220	98	70	245	220	520	195	480	388	3,090	650	440
4.....	245	74	79	195	320	440	195	405	405	3,410	700	490
5.....	290	74	79	170	335	480	195	335	305	2,890	750	440
6.....	245	85	85	146	335	650	290	290	320	2,490	650	405
7.....	195	68	79	79	305	850	352	275	320	2,040	700	405
8.....	220	63	68	85	275	800	370	245	260	1,800	650	480
9.....	170	115	65	63	245	700	440	220	275	1,420	600	750
10.....	146	146	64	63	260	850	480	245	305	1,160	560	850
11.....	146	115	74	85	305	1,030	480	275	275	970	560	970
12.....	115	77	63	66	305	970	422	195	275	850	650	1,280
13.....	135	135	51	98	320	750	290	195	320	750	750	1,490
14.....	195	115	53	85	290	650	290	195	335	650	750	1,210
15.....	260	124	62	208	195	560	388	170	305	600	750	970
16.....	195	106	68	195	245	560	405	170	305	560	700	750
17.....	195	91	91	158	245	650	440	170	320	480	650	650
18.....	232	70	91	124	220	480	440	170	335	560	560	520
19.....	220	91	106	135	182	370	405	158	275	650	480	440
20.....	195	58	91	170	124	305	370	158	335	800	405	405
21.....	170	68	79	245	124	275	388	158	352	1,350	480	405
22.....	146	68	68	405	124	220	335	146	335	1,960	460	370
23.....	146	85	91	405	158	220	305	124	388	1,880	560	335
24.....	135	74	91	370	335	275	275	146	850	1,720	650	290
25.....	170	63	91	320	480	232	275	146	1,210	1,350	750	275
26.....	170	63	124	260	650	232	245	158	2,310	1,090	850	305
27.....	146	79	98	220	560	208	208	195	3,520	850	850	245
28.....	135	58	74	220	560	220	245	335	4,680	750	800	245
29.....	135	51	85	208	480	232	158	.....	3,980	750	800	220
30.....	124	51	220	170	460	245	280	.....	3,090	700	850	388
31.....	77	44	.....	170	.....	220	370	.....	2,400	.....	800	.....
Mean...	180	82.1	82.9	194	299	493	320	237	957	1,390	665	574

NOTE.— Winter records not affected by ice.

Monthly discharge of WEST BRANCH OF OSWEGATCHIE RIVER NEAR HARRISVILLE for the year ending June 30, 1917

[Drainage area, 245 square miles]

MONTH	DISCHARGE IN SECOND-FEET				Run-off Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	290	77	180	0.735	0.85
August.....	146	44	82.1	0.335	0.39
September.....	220	51	82.9	0.338	0.38
October.....	405	63	194	0.792	0.91
November.....	650	124	299	1.22	1.36
December.....	1,030	208	493	2.01	2.32
January.....	480	158	320	1.31	1.51
February.....	480	124	237	0.967	1.01
March.....	4,880	260	957	3.91	4.51
April.....	3,410	480	1,390	5.67	6.23
May.....	850	405	665	2.71	3.12
June.....	1,490	220	574	2.34	2.61
The year.....	4,880	44	456	1.86	25.20

RAQUETTE RIVER

DESCRIPTION

Raquette river rises in northern Hamilton county, flows almost north through a long narrow valley to St. Lawrence river. Its total length from its source to its confluence with the St. Lawrence, near the most northern point of the state, is 162 miles. The drainage area at the mouth of the river is 1,269 square miles.

Its source is on an elevated plateau about 1,600 feet above sea-level. The upper part of the basin includes many acres of swamp land, as well as a large area of lakes and ponds, including Tupper lake, Little Tupper lake, Long lake, Round lake, Blue Mountain lake, Forked lake and Raquette lake.

The high region receives a heavy rainfall, the mean annual amounting to about forty-eight inches, or about ten inches above the mean for the state.

The course of the river through the mountains is marked by many falls and rapids, but as yet only 400 feet of the 1,400 feet of fall in the river below Tupper lake has been developed. The river is characterized by tremendous fluctuations between the maximum and minimum flow and is in great need of artificial regulation, if the possibilities of power development are to be fully realized.

RAQUETTE RIVER AT PIERCEFIELD

Location.—One-half mile below the dam of the International Paper Company at Piercefield, St. Lawrence county, and about $\frac{3}{4}$ mile above head of Black rapids.

Drainage area.—723 square miles. (All but 16 square miles measured on U. S. G. S. topographic maps.)

Records available.—August 20, 1908, to June 30, 1917.

Gage.—Stevens water-stage recorder in a galvanized sheet-iron house over a concrete well, connected with the river by a 4-inch cast-iron pipe, located on the right bank about $\frac{1}{2}$ mile below dam. Prior to January 1, 1913, the following gages were used: August 20, 1908, to September 3, 1910, vertical staff fastened to an old pine stump; September 4 to December 31, 1910, chain gage

fastened to same stump and having the same datum; June, 1, 1911. datum of the chain gage lowered 2 feet. Water-stage recorder was set at this datum. Recorder inspected by M. O. Wood.

Discharge measurements.—Made from a cable three-quarters mile below gage — just above Black rapids.

Channel and control.—Channel opposite gage is a deep pond with no perceptible velocity. Control point is at head of Black rapids.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 9.75 feet at 9 A. M., April 30; discharge, 4,950 second-feet. Minimum stage from water-stage recorder. 1.69 feet at 6 P. M., October 29; discharge, 48 second-feet.

1908–1917: Maximum stage from water-stage recorder, 11.68 feet at 3 A. M., April 1, 1913; discharge, 7,100 second-feet. Minimum stage from water-stage recorder, 0.85 foot at 11 A. M., September 2, 1913; discharge, approximately 10 second-feet.

Ice.—Rapids that form control rarely freeze and measurements when the pond was covered with ice indicate that the stage-discharge relation is not affected.

Regulation.—Large diurnal fluctuation in flow caused by dam during low and medium stages. Numerous lakes in the upper part of the drainage afford considerable storage, most of which is controlled, having large affect on the seasonal distribution of flow.

Accuracy.—Stage-discharge relation practically permanent. Not affected by ice. Rating curve well defined between 50 and 7,000 second-feet. Operation of the water-stage recorder satisfactory throughout the year. Daily discharge ascertained by discharge integration. Results good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission. Water-stage recorder inspected by an employee of the International Paper Company.

Discharge measurements of RAQUETTE RIVER AT PIERCEFIELD, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 28.....	A. H. Davison.....	3.06	256
Oct. 2.....	A. H. Davison.....	3.92	474
Oct. 2.....	A. H. Davison.....	3.99	481
Oct. 8.....	A. H. Davison.....	1.83	59.1
Oct. 14.....	A. H. Davison.....	2.31	109
Oct. 14.....	A. H. Davison.....	2.29	104
Oct. 15.....	A. H. Davison.....	1.96	69.1
Jan. 13.....	A. H. Davison.....	5.16	948
April 17.....	A. H. Davison.....	7.85	2,820
April 17.....	A. H. Davison.....	7.84	2,830
April 17.....	A. H. Davison.....	7.81	2,780
June 1.....	O. W. Hartwell.....	7.51	2,470

Daily discharge, in second-feet, of RAQUETTE RIVER AT PIERCEFIELD, for the nine
months ended June 30, 1916

DAY	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	530	355	686	.....	.....	.....	1,270	4,530	3,310
2.....	652	562	702	.....	.....	.....	1,240	4,530	3,200
3.....	308	562	718	.....	.....	.....	1,910	4,530	3,100
4.....	335	545	700	.....	.....	.....	1,990	4,490	2,680
5.....	562	575	138	.....	.....	.....	2,235	4,530	2,930
6.....	562	575	425	.....	.....	.....	2,320	4,490	2,910
7.....	580	130	715	.....	.....	1,560	2,410	4,220	2,750
8.....	580	339	729	.....	.....	1,520	2,500	4,300	2,630
9.....	485	545	718	.....	.....	1,540	2,440	4,120	2,550
10.....	223	545	720	1,150	.....	1,520	2,590	3,980	2,430
11.....	368	530	715	1,160	.....	1,540	2,680	3,710	1,690
12.....	580	540	245	1,200	.....	754	2,680	3,540	2,010
13.....	598	545	575	1,160	.....	1,380	2,680	3,410	1,900
14.....	580	119	725	1,130	.....	1,520	2,590	3,150	1,710
15.....	562	309	740	1,100	.....	1,390	2,680	3,200	1,700
16.....	440	515	730	.....	.....	1,300	2,580	3,140	1,650
17.....	227	525	740	.....	.....	1,330	3,080	3,300	1,510
18.....	367	500	700	.....	.....	1,330	2,980	3,690	739
19.....	562	515	355	.....	.....	629	2,880	3,950	1,320
20.....	580	330	761	.....	.....	* 1,000	2,980	4,210	1,580
21.....	562	232	674	.....	.....	1,140	2,980	4,270	1,360
22.....	562	304	670	.....	.....	1,250	3,180	4,650	1,160
23.....	485	545	704	.....	.....	1,160	3,290	4,720	1,160
24.....	235	540	815	1,130	.....	1,130	3,730	4,670	1,260
25.....	376	545	453	1,210	.....	1,130	4,290	4,590	632
26.....	562	575	471	1,240	.....	533	4,290	4,390	1,100
27.....	562	550	.....	1,240	.....	993	4,290	4,240	1,030
28.....	562	285	.....	1,560	.....	1,040	4,410	3,900	781
29.....	580	696	.....	1,760	.....	857	4,410	3,900	779
30.....	598	661	.....	1,690	.....	1,630	4,290	3,640	775
31.....	293	.....	.....	1,950	.....	1,240	.....	3,480	.....
Mean.....	486	470	684	1,150	1,700	1,270	2,930	4,050	1,810

NOTE.—Mean discharge estimated as follows: December 27 to 31, 975 second-feet; January 1 to 9, 978 second-feet; January 16 to 23, 1,040 second-feet; February 1 to 10, 1,910 second-feet; February 11 to 20, 1,570 second-feet; February 21 to 29, 1,600 second-feet; March 1 to 6, 1,600 second-feet. This table supersedes the table published in the Report of the State Engineer and Surveyor for 1916, Vol. II, page 197.

Daily discharge, in second-feet, of RAQUETTE RIVER AT PIERCEFIELD, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	908	598	365	62	428	872	1,030	895	545	1,530	4,700	2,450
2.....	853	608	365	200	377	940	1,060	895	530	2,150	4,540	2,260
3.....	818	587	217	230	395	655	900	895	545	2,670	4,380	2,510
4.....	507	573	107	230	425	1,080	1,070	390	266	3,040	4,270	2,460
5.....	492	580	249	230	246	1,100	989	639	408	3,380	4,180	2,480
6.....	747	318	274	225	395	1,040	879	895	562	3,680	3,970	2,440
7.....	750	492	218	140	425	1,330	840	686	647	4,260	3,900	2,400
8.....	784	562	185	65	440	1,290	742	545	545	3,690	3,750	2,500
9.....	347	573	104	250	425	1,380	892	715	562	4,050	3,580	2,500
10.....	670	573	82	236	425	1,030	878	895	530	3,980	3,420	2,340
11.....	779	580	145	233	460	1,430	906	348	249	3,870	3,350	2,750
12.....	741	584	203	235	271	1,590	800	700	476	3,780	3,220	3,220
13.....	737	294	190	227	457	1,560	723	880	620	3,640	3,060	3,480
14.....	892	471	194	156	515	1,580	476	880	624	3,380	3,070	3,600
15.....	933	545	203	70	515	1,550	897	870	617	3,180	2,950	3,740
16.....	517	530	119	198	500	1,580	918	870	610	3,060	2,880	3,810
17.....	873	556	60	253	500	966	918	784	608	2,820	2,790	3,750
18.....	1,170	596	118	245	500	1,560	918	238	268	2,730	2,720	3,830
19.....	759	548	218	244	294	1,590	900	428	530	2,580	2,660	3,810
20.....	769	304	234	243	441	1,390	872	562	623	2,740	2,470	3,680
21.....	726	363	224	336	470	1,380	425	545	633	3,030	2,500	3,620
22.....	725	539	214	180	470	1,380	661	562	620	3,480	2,470	3,540
23.....	397	539	124	359	485	1,300	756	545	696	3,900	2,450	3,350
24.....	738	500	59	380	500	564	918	545	500	4,280	2,410	3,080
25.....	615	479	156	380	530	700	848	273	222	4,630	2,390	3,230
26.....	632	449	220	395	350	1,240	940	414	821	4,830	2,400	3,070
27.....	632	276	232	365	652	1,370	895	562	1,060	4,900	2,290	2,840
28.....	632	328	230	443	830	1,370	448	562	1,160	4,880	2,420	2,660
29.....	650	416	222	214	830	1,380	760	.....	1,190	4,850	2,420	2,600
30.....	460	401	122	428	872	1,200	918	.....	2,490	4,830	2,420	2,520
31.....	650	386	.....	485	.....	573	918	.....	1,590	.....	2,470	.....
Mean...	699	488	188	256	481	1,220	632	643	689	3,590	3,110	3,020

NOTE.— Mean daily discharge determined by discharge integration.

Monthly discharge of RAQUETTE RIVER AT PIERCEFIELD, for the nine months ended June 30, 1916

[Drainage area, 723 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
October.....	652	a 223	486	0.673	0.78
November.....	696	a 119	470	0.660	0.73
December.....	.....	a 138	718	0.990	1.14
January.....	1,950	.....	1,150	1.59	1.83
February.....	.....	.....	1,700	2.35	2.83
March.....	.....	a 533	1,270	1.76	2.03
April.....	4,410	a 1,240	2,930	4.05	4.52
May.....	4,720	a 3,130	4,050	5.60	6.46
June.....	3,310	a 632	1,810	2.50	2.79

a Sunday.

NOTE.— Figures in the above table are not corrected for storage. This table supersedes the table published in the Report of the State Engineer and Surveyor for 1916, Vol. II, page 197.

Monthly discharge of RAQUETTE RIVER AT PIERCEFIELD, for the year ended June 30, 1917

(Drainage area, 723 square miles)

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,170	a 347	699	0.967	1.11
August.....	608	a 276	488	0.675	0.78
September.....	365	a 60	188	0.260	0.29
October.....	485	a 62	256	0.354	0.41
November.....	872	a 246	481	0.665	0.74
December.....	1,590	a 564	1,220	1.69	1.95
January.....	1,070	a 425	832	1.15	1.33
February.....	895	a 238	643	0.890	0.93
March.....	2,490	a 249	689	0.953	1.10
April.....	4,900	a 1,530	3,690	4.97	5.54
May.....	4,700	a 2,290	3,110	4.30	4.96
June.....	3,830	a 2,260	3,020	4.18	4.66
The year.....			1,270	1.76	23.99

a Sunday.

Note.— Figures in the above table are not corrected for storage.

RAQUETTE RIVER AT MASSENA SPRINGS

Location.—At the concrete highway bridge at Massena Springs, St. Lawrence county, 8 miles below Raymondville and 10 miles above the mouth of the stream.

Drainage area.—1,200 square miles. (Measured by engineers of the New York State Conservation Commission—probably more accurate than the area given in reports previous to 1914.)

Records available.—September 21 to October 17, 1903, and April 9, 1904, to November 30, 1916, when the station was discontinued.

Gage.—Chain gage, near center of left span, upstream side of bridge, installed February 2, 1912. Original gage was a vertical staff fastened to the stonework on the left bank, about 50 feet upstream from the present bridge. On August 16, 1906, it was replaced by the present chain gage, fastened to the old highway bridge just above the present bridge. The datum of the present gage was set 1 foot lower than that of the staff gage to avoid negative readings. The present chain gage was reset at such a datum that readings would be comparable with those at the former location. Gage read by Vivian McDonald.

Discharge measurements.— Made from the downstream side of the bridge.

Channel and control.— Coarse gravel and boulders; shifting.

Extremes of discharge.— Current period, July 1 to November 30: Maximum stage recorded, 3.4 feet at 10 A. M., July 19; discharge, 1,660 second-feet. Minimum stage recorded, 1.00 foot at 8:30 A. M., October 5; discharge, 197 second-feet.

1903-1917: Maximum stage recorded, 14.2 feet between 9 and 11 A. M., March 31, 1913; discharge, 16,500 second-feet. Minimum stage recorded, 0.8 foot at 8:30 A. M., September 21, 1913; discharge, approximately 50 second-feet.

Ice.— Stage-discharge relation affected by ice. Gage observations suspended during this period.

Regulation.— The operation of a number of power-plants above the station has marked effect on the low-water flow of the stream. These plants are usually run for 24-hour power, but are closed on Sundays. The effect of this closing is noticeable for several days.

Accuracy.— Stage-discharge relation practically permanent between dates of shifting. The rating curve fairly well defined between 200 and 8,000 second-feet. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying the mean daily gage height to rating table. Results fair.

Coöperation.— Station maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of RAQUETTE RIVER AT MASSENA SPRINGS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 28.....	A. H. Davison.....	2.07	850
July 28.....	A. H. Davison.....	2.21	884
Sept. 19.....	A. H. Davison.....	1.20	272
Sept. 19.....	A. H. Davison.....	1.17	226

Daily discharge, in second-feet, of RAQUETTE RIVER AT MASSENA SPRINGS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	DAY	July	Aug.	Sept.	Oct.	Nov.
1.....	1,260	665	370	310	492	16.....	1,100	415	520	728	465
2.....	1,260	792	310	150	465	17.....	415	392	440	825	415
3.....	1,180	1,030	370	330	392	18.....	1,500	290	330	825	415
4.....	465	960	330	370	575	19.....	1,500	290	330	890	310
5.....	665	925	350	168	520	20.....	1,500	370	290	1,100	370
6.....	1,030	890	290	290	415	21.....	1,500	370	310	1,180	465
7.....	1,500	370	392	290	465	22.....	1,340	290	290	1,500	605
8.....	960	728	415	520	440	23.....	605	575	415	1,260	760
9.....	665	520	415	415	370	24.....	792	760	370	1,100	960
10.....	825	665	492	350	330	25.....	1,030	825	330	1,030	1,030
11.....	1,030	1,100	415	370	520	26.....	1,030	760	392	960	1,000
12.....	1,180	1,030	465	440	728	27.....	925	890	330	858	960
13.....	1,340	858	465	465	575	28.....	728	890	330	890	1,100
14.....	1,340	695	575	792	415	29.....	925	760	310	1,030	960
15.....	1,100	465	575	1,030	350	30.....	415	792	392	635	960
						31.....	575	605	.....	350	.....
						Mean.....	1,020	678	387	692	594

Monthly discharge of RAQUETTE RIVER AT MASSENA SPRINGS, for the year ended June 30, 1917

[Drainage area, 1,200 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,500	415	1,020	0.850	0.98
August.....	1,100	290	678	0.565	0.65
September.....	575	290	387	0.322	0.36
October.....	1,500	150	692	0.577	0.67
November.....	1,030	310	594	0.495	0.55

NOTE.— Figures in the above table are not corrected for storage above Piercesfield.

ST. REGIS RIVER

DESCRIPTION

St. Regis river has its source in several small streams and lakes in the western part of Franklin county at an elevation of about 1,500 feet above the sea. It first flows in a northwesterly direction for about 40 miles and then somewhat east of north for about 28 miles to its mouth, in the St. Lawrence river near the State line. Its drainage area comprises 664 square miles (State Water Supply Commission).

The upper portion of its watershed consists of swamp and of mountains, from which most of the forest has been cut. Upon leaving the plateau the stream descends for 10 or 15 miles through a rugged country by a succession of steep rapids and precipitous falls to the lowlands bordering the St. Lawrence. Only a few of the excellent opportunities for developing power in the descent have as yet been utilized. From the foot of the hills to the St. Lawrence, the slope of the river is moderate and rock outcrop not frequent, consequently favorable sites for power-plants are scarce.

ST. REGIS RIVER AT BRASHER CENTER

Location.—Near the steel highway bridge in the village of Brasher Center, St. Lawrence county, 5 miles downstream from Brasher Falls, $6\frac{1}{4}$ miles below junction of east and west branches of St. Regis river and about 12 miles above the mouth.

Drainage area.—621 square miles. (Measured on post-route map.)

Records available.—August 22, 1910, to June 30, 1917.

Gages.—Staff, with inclined and vertical sections, on right bank about 600 feet above bridge. Installed June 24, 1916. Prior to this date, chain on right downstream side of bridge. Gages not at same datum, subject to different controls. Gages read by George Myers.

Discharge measurements.—Made from a cable at the staff gage, installed in June, 1916. Previously made from the highway bridge or by wading.

Channel and control.—Small boulders and coarse gravel at cable; large boulders and gravel, very rough, at bridge. Both fairly permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 9.58 feet at 5 p. m., April 3; discharge, 6,030 second-feet. Minimum stage recorded, 5.75 feet at 7 a. m., August 21; discharge, 162 second-feet.

1910–1917: Maximum stage recorded, 9.1 feet at 7 a. m., March 27, 1914; discharge, 16,200 second-feet. Minimum stage recorded, 3.75 feet at 5 p. m., August 9, 7 a. m. and 5 p. m., August 10, and 7 a. m., August 12, 1914; discharge, 105 second-feet.

Ice.—Stage-discharge relation seriously affected by ice.

Accuracy.—Stage-discharge relation practically permanent. Affected by ice during a large portion of the period from December to March, inclusive. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good except for periods when the stage-discharge relation was affected by ice, when results were fairly good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of ST. REGIS RIVER AT BRASHER CENTER, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		Feet	Sec.-ft.
July 29.....	A. H. Davison.....	4.08	298
Sept. 20.....	A. H. Davison.....	4.00	244
Jan. 15 a.....	A. H. Davison.....	7.12	544
Feb. 15 a.....	A. H. Davison.....	7.02	332
Mar. 13 a.....	A. H. Davison.....	7.09	487
Mar. 29.....	A. H. Davison.....	8.72	4,150
Mar. 29.....	A. H. Davison.....	8.70	4,120
April 4.....	A. H. Davison.....	9.89	5,900
April 10.....	A. H. Davison.....	7.73	2,890
April 14.....	A. H. Davison.....	7.25	1,680

a Measurement made through complete ice cover.

Daily discharge, in second-feet, of ST. REGIS RIVER AT BRASHER CENTER, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	695	296	179	571	395	695	190	300	650	3,350	1,730	1,050
2.....	590	259	183	552	395	940	240	300	600	4,540	1,590	930
3.....	533	237	183	395	395	810	240	360	550	5,850	1,520	1,050
4.....	461	237	195	322	452	752	260	340	650	5,400	1,590	1,180
5.....	514	220	264	335	418	940	300	340	650	4,960	1,450	1,050
6.....	571	215	259	322	395	1,050	380	340	500	4,750	1,240	1,050
7.....	410	220	220	372	372	875	500	300	400	4,330	1,050	990
8.....	452	237	215	283	410	940	600	320	400	3,530	1,120	1,240
9.....	495	237	207	322	360	940	500	360	400	3,170	1,310	1,660
10.....	402	237	175	259	380	1,050	460	320	380	2,340	1,180	1,730
11.....	365	283	199	237	514	940	480	340	340	1,880	1,050	2,180
12.....	418	342	199	283	571	1,000	400	340	400	1,800	1,310	2,500
13.....	402	302	191	270	452	850	300	340	500	1,730	1,660	2,880
14.....	350	220	199	372	350	750	280	300	500	1,590	1,730	2,880
15.....	365	248	179	395	283	800	300	280	400	1,310	1,880	2,500
16.....	335	237	195	444	322	850	380	300	360	1,120	1,520	2,340
17.....	365	220	179	452	270	320	600	220	380	930	1,050	2,030
18.....	372	191	195	452	328	340	500	280	480	1,240	810	1,450
19.....	380	179	276	478	350	300	480	260	550	1,590	870	1,120
20.....	365	171	237	495	365	340	440	220	600	2,030	810	930
21.....	335	175	220	810	350	260	500	240	600	2,660	930	758
22.....	302	195	220	1,050	372	240	420	300	500	3,170	1,180	990
23.....	402	175	226	940	322	260	320	300	700	3,170	1,730	810
24.....	427	179	248	695	590	240	340	320	1,300	3,170	1,660	810
25.....	410	179	215	571	1,300	240	440	300	2,500	2,500	1,730	758
26.....	365	175	276	495	752	200	500	340	3,920	2,180	1,730	665
27.....	335	179	296	452	642	180	380	480	4,330	1,880	1,730	685
28.....	322	171	350	395	600	220	380	800	4,960	1,590	1,590	685
29.....	283	183	264	350	642	200	260	.....	3,920	1,520	1,450	665
30.....	264	195	302	365	611	240	320	.....	2,830	1,660	1,310	758
31.....	237	183	.....	342	.....	260	320	.....	2,660	.....	1,240	.....
Mean...	404	219	225	454	465	581	387	332	1,220	2,700	1,880	1,340

NOTE.— Discharge, December 12 to March 25, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of ST. REGIS RIVER AT BRASHER CENTER, for the year ended June 30, 1917

[Drainage area, 621 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	695	237	404	0.650	0.75
August.....	342	171	219	0.353	0.41
September.....	350	175	225	0.362	0.40
October.....	1,050	237	454	0.731	0.84
November.....	1,300	270	465	0.749	0.84
December.....	1,050	180	581	0.936	1.08
January.....	600	190	387	0.623	0.72
February.....	800	220	332	0.535	0.56
March.....	4,980	340	1,220	1.96	2.26
April.....	5,850	930	2,700	4.35	4.85
May.....	1,880	810	1,380	2.22	2.56
June.....	2,880	665	1,340	2.16	2.41
The year.....	5,850	171	809	1.30	17.68

DEER RIVER, FRANKLIN COUNTY

DESCRIPTION

Deer river is the principal tributary of the St. Regis. Rising in the central part of Franklin county at an elevation of about 1,500 feet above the sea, it flows in a general northwesterly direction, entering the St. Regis near Helena. The river has an average slope of about 10 feet per mile up to North Lawrence. From North Lawrence to Tebo it has an average slope of 61 feet per mile. In this stretch the river drops 767 feet in 12½ miles. Probably 60 per cent of this fall would be attractive for power development, if some means were provided for regulating the flow of the stream. The country above Tebo is wild and there are no maps with requisite data to show storage possibilities in this region.

DEER RIVER AT BRASHER IRON WORKS

Location.— In the village of Brasher Iron Works, St. Lawrence county, about 1,000 feet below the steel highway bridge and 2 miles above the confluence of Deer river with St. Regis river in Helena. No important tributaries enter between the gage and mouth of river.

Drainage area.— 206 square miles. (Measured on post-route maps.)

Records available.— July 25, 1912, to September 30, 1916, when the station was discontinued.

Gage.— Inclined staff 32 feet long, graduated from 0.5 to 11.0 feet, about 1,000 feet below the steel highway bridge. Gage read by Alex. Barlow.

Discharge measurements.— Made from the bridge during medium and high water and by wading at low stages.

Channel and control.— Gravel and rocks; fairly permanent.

Extremes of discharge.— Current period, July 1 to September 30: Maximum stage recorded, 1.9 feet at 6 p. m., July 17; discharge, 192 second-feet. Minimum stage recorded, 0.85 foot at 6 p. m., September 12; discharge, 21 second-feet.

Ice.—Stage-discharge relation seriously affected by ice. Gage observations suspended during such periods.

Accuracy.—Stage-discharge relation practically permanent between dates of shifting. Affected by ice for large portion of period from December to March, inclusive. Rating curve used, October 1 to March 31, well defined between 35 and 600 second-feet; fairly well defined between 600 and 3,200 second-feet. Rating curve used, April 1 to September 30, well defined between 40 and 600 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good, except for periods when the discharge, after April 1, was above 600 second-feet, when the results are fairly good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of DEER RIVER AT BRASHER IRON WORKS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 29 a	A. H. Davison	1.17	56.6

a Measurement made by wading.

GAGING OF STREAMS: ST. LAWRENCE DRAINAGE 219

Daily discharge, in second-feet, of DEER RIVER AT BRASHER IRON WORKS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	DAY	July	Aug.	Sept.
1.....	116	60	46	16.....	76	35	56
2.....	107	41	34	17.....	146	24	56
3.....	116	40	48	18.....	136	40	52
4.....	157	48	50	19.....	126	46	66
5.....	136	47	66	20.....	98	52	47
6.....	146	45	52	21.....	74	37	45
7.....	107	42	71	22.....	67	27	47
8.....	98	71	63	23.....	73	40	52
9.....	88	88	48	24.....	90	37	71
10.....	74	93	57	25.....	76	41	54
11.....	92	88	41	26.....	68	34	57
12.....	93	71	25	27.....	61	40	63
13.....	157	60	46	28.....	61	40	54
14.....	116	47	41	29.....	55	31	43
15.....	98	37	27	30.....	54	42	86
				31.....	50	42	.....
				Mean.....	97.2	47.9	51.7

Monthly discharge of DEER RIVER AT BRASHER IRON WORKS, for the year ended June 30, 1917

[Drainage area, 206 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	157	50	97.2	0.472	0.54
August.....	93	24	47.9	0.233	0.27
September.....	80	25	51.7	0.251	0.28

LAKE CHAMPLAIN DRAINAGE BASIN

DESCRIPTION OF BASIN

Lake Champlain occupies a long and narrow valley, extending in a north-south direction and forming a part of the boundary between New York and Vermont.

Drainage areas tributary to LAKE CHAMPLAIN *

LOCALITY	AREA IN SQUARE MILES		
	Place to place	Sub-total	Total
Pike river and adjacent area in Canada.....		a 242.00	.....
Missisquoi river in Canada.....		b 245.00	.....
Land area in Canada above outlet.....			487.00
Missisquoi river in Vermont.....		b 615.00	.....
(Total Missisquoi river, 860 square miles.)			
Lamoille river.....		b 725.00	.....
Winooski river.....		b 995.00	.....
Otter creek.....		b 935.00	.....
Eastern coast drainage.....		b 534.40	.....
Mettawee, Poultney and Castleton rivers in Vermont.....		c 376.00	.....
Land area in Vermont, except islands.....			4,180.40
Wood creek above Smith's Basin.....	18.60		.....
Big creek (Washington Co.) above junction with Wood creek..	35.16	53.76	.....
Wood creek, Smith's Basin to Fort Ann.....	9.90	63.66	.....
Halfway creek above Kane's falls.....	78.82		.....
Halfway creek, Kane's falls to junction with Wood creek at Fort Ann.....	6.69	85.51	.....
Wood creek at Fort Ann, including Halfway creek.....		149.17	.....
Wood creek, Fort Ann to junction with Mettawee.....	55.73	204.90	.....
Mettawee river in Vermont.....	151.90		.....
Mettawee river in New York.....	55.70		.....
Total, Mettawee river.....		207.60	.....
Total, Wood creek and Mettawee river at junction.....		412.50	.....
Wood creek, junction Mettawee river to Whitehall.....	13.65	426.15	.....
Wood creek, Whitehall to junction with Poultney river.....	1.65	427.80	.....
Castleton river, in Vermont.....	100.90		.....
Poultney river, including Castleton river in Vermont.....		254.80	.....
Poultney river in New York.....		11.00	.....
Poultney river, total to junction with Wood creek.....		265.80	.....
Total, Wood creek and Poultney river at junction.....			693.60
Wood creek, Mettawee and Poultney rivers in New York.....			286.90
Lake George outlet.....		220.10	.....
Bouquet river.....		c 268.10	.....
Ausable river.....		d 521.30	.....
Little Ausable river.....		d 75.10	.....
Saranac river.....		d 629.60	.....
Little Chazy river.....		c 63.80	.....
Big Chazy river.....		d 299.40	.....
Western coast drainage.....		d 344.60	.....
Land area in New York, except islands.....			2,708.90
Islands in New York.....		e 55.20	.....
Total land area above outlet.....			7,431.50
Water-surface in Canada.....		e 16.50	.....
Water-surface in United States.....		e 419.10	.....
Total water-surface.....		435.60	.....
Total drainage area above outlet.....			7,867.10
Richelieu river, Rouses Point to Chambly.....	a 310.00		.....
Total drainage area above Chambly.....			8,177.10
Richelieu river, Chambly to mouth.....	a 626.30		.....
Richelieu river, total.....		936.30	.....
Total drainage area above mouth.....			8,803.40

* Table here presented is a revision of that appearing in the 1907 report. a From maps of Canadian Geological Survey. Scale: 1 inch = 4 miles. b United States post-route maps. Scale: 1 inch = 12.5 miles. c Topographic maps of U. S. G. S. Scale: 1 inch = 1 mile (nearly). d Bien's Atlas of New York. Scale: 1 inch = 2.5 miles. e Charts of U. S. Coast and Geodetic Survey. Scale: 1:40,000.

The drainage basin is irregular in form, being about seventy-five miles wide from a point opposite Middlebury, Vt., northward to the outlet of the lake at Rouses Point, on the international boundary. South of Middlebury the average width of the basin is about thirty-five miles and the lake itself is very narrow, forming virtually a drowned river.

The tributary region is rugged and mountainous, mostly covered with forest and with little depth of soil except in the stream valleys. The drainage is received almost entirely through large tributaries, there being little direct coast drainage into the lake. The outlet of the lake is Richelieu river, which flows northward from Rouses Point to St. Lawrence river. The land drainage area above Rouses Point is 7,431 square miles. The water-surface of the lake is 436 square miles, making the total area at the foot of the lake 7,867 square miles.

The fluctuation of the lake surface has an extreme range of nearly ten feet.

LAKE CHAMPLAIN

Records showing the water-surface of Lake Champlain are kept at Fort Montgomery and Burlington by the United States Government and at Whitehall by the State of New York. The Government elevations are referred to mean sea-level at Sandy Hook, while the State elevations, Barge canal datum, are referred to mean tide at New York, which is taken as 14.73 feet below the Greenbush bench-mark. The relation between the two sets of elevations in this region is shown by the following determinations of the elevation of the old bench-mark at Whitehall, described as, "U. S. D. W. B. M., on coping of lock No. 23, between ends of anchor, N. W. gate, marked (cross in circle) U. S., with chisel," which is New York State Canal B. M. No. 130 and United States Coast and Geodetic Survey B. M. No. 36.

	Feet
Elevation (New York State Barge canal datum)	104.375
Elevation (United States Coast and Geodetic Survey datum)	103.565
Difference	0.81

Therefore, to convert elevations in this region given by the United States Coast and Geodetic Survey or by the United States Engineers (War Department), referred to mean sea-level, to elevations referred to Barge canal datum, add 0.81 foot. It is to be noted that the similar relation at Albany is 0.87 foot.

LAKE CHAMPLAIN AT WHITEHALL

A gage has been maintained by this Department in the mouth of Wood creek below the dam at Whitehall since January 22, 1905. This gage gives a record of the fluctuation in level of water in this arm of Lake Champlain which, however, is considerably affected by Wood creek discharges.

The original gage was attached to the face of the Champlain silk-mill on the right side of the stream below the dam. A standard Type A gage, No. 126, now used, is secured to the upper end of the lower east gate recess and has a range of 4 feet, between elevation 93.0 and 97.0. A standard bench-mark plug is set in the wall above the gage at elevation 115.0 (B. C. datum).

The gage is read twice daily — morning and afternoon — to tenths, with occasional readings to half-tenths.

This record was published as "Wood creek below Dam at Whitehall" previous to 1914.

Daily elevation of water-surface (B. C. datum) of LAKE CHAMPLAIN AT WHITEHALL,
for the year ended June 30, 1917. W. J. Berry, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	97.35	96.3	94.5	95.0	94.4	95.5	95.25	95.6	95.45	98.1	98.85	97.3
2.....	97.4	96.0	94.4	94.65	94.5	95.25	95.35	95.65	95.38	98.6	98.9	97.5
3.....	97.55	95.55	94.3	94.6	94.8	95.1	95.28	95.5	95.42	99.8	99.05	97.4
4.....	97.95	95.6	94.45	94.25	94.55	94.9	95.25	95.5	95.5	99.5	99.3	97.6
5.....	97.7	95.5	94.85	94.55	94.65	94.9	95.25	95.65	95.45	99.35	99.0	97.45
6.....	97.3	96.0	94.6	94.55	94.55	94.95	95.4	95.6	95.5	99.25	99.05	97.55
7.....	97.0	95.6	94.3	94.5	94.3	95.8	95.25	95.45	95.4	99.2	98.8	97.25
8.....	97.35	95.65	94.45	94.45	94.0	95.4	95.22	95.45	95.5	99.28	98.75	97.25
9.....	97.3	95.95	94.95	94.8	93.85	95.15	95.3	95.6	95.45	99.2	98.75	97.2
10.....	96.95	95.75	95.4	94.7	94.45	95.3	95.45	95.4	95.5	100.0	98.75	97.4
11.....	96.85	95.45	94.8	94.5	94.4	95.35	95.5	95.4	95.5	99.7	98.45	97.5
12.....	96.8	95.8	94.3	94.35	94.5	95.55	95.3	95.6	95.6	99.65	98.9	98.95
13.....	96.8	95.85	94.35	93.7	94.8	95.65	95.28	95.5	95.6	99.6	99.3	98.45
14.....	97.0	95.95	94.55	94.75	94.85	95.6	95.5	95.6	95.52	99.35	98.6	98.2
15.....	96.5	95.5	94.65	93.7	94.5	95.45	95.75	95.45	95.55	99.4	99.45	98.35
16.....	96.2	95.45	94.85	93.9	94.4	95.75	95.65	95.35	95.55	99.15	98.45	98.6
17.....	96.7	95.45	94.8	94.3	94.3	95.7	95.35	95.28	95.65	99.15	98.25	98.55
18.....	96.45	95.45	94.9	94.35	94.45	95.5	95.45	95.45	95.7	99.0	98.3	98.2
19.....	96.3	95.5	94.75	94.35	94.1	95.4	95.55	95.32	95.72	99.25	97.95	98.1
20.....	96.15	95.3	94.45	94.5	94.8	95.3	95.5	95.25	95.55	98.85	97.55	98.1
21.....	96.3	95.45	94.15	94.4	94.65	95.25	95.5	95.4	95.7	98.8	98.2	98.05
22.....	96.45	95.55	94.3	94.65	94.2	95.5	95.55	95.4	95.78	99.15	97.85	98.05
23.....	96.55	95.35	94.25	94.7	94.1	95.45	95.55	95.3	96.32	99.2	97.75	98.05
24.....	96.3	95.1	94.35	94.55	94.6	95.45	95.55	95.35	97.55	99.9	97.62	98.0
25.....	96.15	94.95	94.25	94.45	94.4	95.6	95.62	95.35	98.7	99.6	97.7	98.0
26.....	96.1	95.05	94.45	94.55	94.8	95.5	95.5	95.38	98.45	99.3	97.92	97.85
27.....	96.55	95.2	94.45	94.3	94.15	95.2	95.6	95.7	98.4	99.3	97.8	97.5
28.....	96.15	95.1	94.3	94.65	94.4	95.3	95.6	95.75	98.55	99.6	98.05	97.7
29.....	95.8	94.75	94.25	94.15	94.55	95.55	95.5	.....	98.55	99.15	97.95	97.7
30.....	95.7	94.55	94.35	94.35	95.25	95.35	95.45	.....	98.3	98.95	98.15	97.5
31.....	95.95	94.35	.....	94.55	.....	95.2	95.58	.....	98.25	.....	97.85	.....

LAKE CHAMPLAIN AT BURLINGTON, VT.

Location.— On south side of roadway leading to dock of Champlain Transportation Co., at foot of King street, Burlington, Vt.

Records available.— May, 1907, to June 30, 1917.

Gage.— Staff; read once daily. Comparisons of gage readings indicate that zero of gage at Burlington is at practically the same elevation as that of gage at Fort Montgomery — 92.50 feet above mean sea-level (Elev. 93.31 B. C. datum).

Extremes of stage.— Current year: Maximum stage recorded, 6.20 feet on April 10 and 11. Minimum stage recorded, 0.95 foot, November 24 and 25.

1907–1917: Maximum stage recorded, 8.20 feet on April 7, 1913. Minimum stage recorded, 0.25 foot on December 4, 1908.

Coöperation.— Gage heights furnished through the courtesy of Mr. D. A. Loomis, general manager of the Champlain Transportation Company to the United States Geological Survey.

Daily gage height, in feet, of LAKE CHAMPLAIN AT BURLINGTON, VERMONT, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.75	2.40	1.53	.....	1.11	1.50	1.80	.....	.....	.....	5.65	4.15
2.....	.....	2.35	1.50	1.25	1.13	1.52	1.80	.....	.....	5.15	5.63	4.13
3.....	3.75	2.31	1.47	1.20	1.15	.....	.....	.....	.....	5.50	5.60	.....
4.....	3.69	2.25	1.44	1.20	1.15	1.60	.....	.....	.....	5.76	5.55	4.08
5.....	3.67	2.17	1.41	1.18	.....	1.65	.....	2.00	.....	5.87	5.48	4.02
6.....	3.62	.....	1.38	1.15	1.11	1.68	.....	.....	1.95	5.98	.....	3.95
7.....	3.58	2.14	1.35	1.13	1.05	1.75	.....	.....	.....	6.05	5.35	3.90
8.....	3.55	2.13	1.31	.....	1.00	1.88	1.82	.....	.....	.....	5.28	3.87
9.....	.....	2.12	1.28	1.05	1.00	1.92	.....	.....	.....	6.18	5.20	3.83
10.....	3.47	2.10	1.25	1.05	1.00	.....	.....	.....	.....	6.20	5.15	.....
11.....	3.43	2.10	1.23	1.03	1.00	1.95	.....	.....	.....	6.20	5.08	3.98
12.....	3.35	2.08	1.20	1.02	.....	1.98	.....	1.98	.....	6.05	5.02	4.30
13.....	3.27	.....	1.20	1.02	1.05	2.00	.....	.....	1.98	5.98	.....	4.52
14.....	3.18	2.03	1.20	1.00	1.05	2.02	.....	.....	.....	5.90	4.95	4.65
15.....	3.13	2.00	1.20	.....	1.04	2.02	.....	.....	.....	.....	4.93	4.82
16.....	.....	1.96	1.20	1.00	1.04	2.03	.....	.....	.....	5.75	4.90	4.86
17.....	3.04	1.96	1.20	.98	1.02	.....	.....	.....	.....	5.68	4.82	.....
18.....	2.98	1.93	1.20	.98	1.02	2.05	2.10	.....	.....	5.62	4.70	4.83
19.....	2.94	1.87	1.20	.98	.....	2.05	.....	1.95	.....	5.65	4.62	4.76
20.....	2.90	.....	1.20	.98	.99	2.05	.....	.....	2.05	5.70	.....	4.75
21.....	2.87	1.82	1.20	.98	.99	2.02	.....	.....	.....	5.72	4.45	4.72
22.....	2.85	1.80	1.20	1.02	.97	2.02	2.10	.....	.....	.....	4.42	4.65
23.....	.....	1.83	1.23	1.18	.97	1.98	.....	.....	.....	5.85	4.38	4.58
24.....	2.70	1.82	.....	1.24	.95	.....	.....	.....	.....	5.90	4.38	.....
25.....	2.73	1.81	1.25	1.24	.95	.....	.....	.....	.....	5.95	4.36	4.55
26.....	2.71	1.80	1.18	1.21	.....	1.94	.....	1.90	2.70	5.92	4.30	4.48
27.....	2.68	1.75	1.10	1.20	1.06	1.93	.....	.....	3.08	5.85	.....	4.35
28.....	2.63	1.70	1.13	1.18	1.19	1.91	.....	.....	3.74	5.80	4.22	4.30
29.....	2.55	1.65	1.18	.....	1.32	1.91	2.03	.....	4.28	.....	4.20	4.13
30.....	.....	1.60	1.20	1.14	1.36	1.90	.....	.....	4.58	5.72	4.20	4.02
31.....	2.43	1.55	.....	1.11	.....	.....	.....	.....	4.72	.....	4.16	.....

RICHELIEU RIVER AT FORT MONTGOMERY, ROUSES POINT

Location.—Inside the fort, $\frac{3}{8}$ mile south of the international boundary, about $\frac{1}{2}$ mile above mouth of Richelieu river, the outlet of Lake Champlain, and 1 mile northeast of the village of Rouses Point, Clinton county.

Drainage area.—7,867 square miles, including 436 square miles of water-surface. (See page 220.)

Records available.—1875 to 1917.

Gage.—Staff, inside the fort. Elevation of gage zero, 92.50 feet above mean sea-level. (Elev., 93.31, B. C. datum.)

Extremes of stage.—Current year: Maximum elevation recorded, 98.25 feet at 10 A. M., April 8 and 9. Minimum elevation recorded, 93.3 feet at 10 A. M., November 20 and 21.

1869-1917: Maximum elevation recorded, 103.28 feet, April, 1869.* Minimum elevation recorded, 91.9 feet, November 13, 1908.

Coöperation.—Gage heights observed under direction of Corps of Engineers, United States Army, and reported weekly to the United States Geological Survey.

* Hoyt, J. C., *Stream Measurements, 1903, North Atlantic, St. Lawrence river and Great Lakes drainage*: U. S. Geological Survey Water-Supply paper 97, page 340.

Daily gage height, in feet, of RICHELIEU RIVER AT FORT MONTGOMERY, ROUSE'S POINT, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.55	2.25	1.50	1.15	1.05	1.20	1.90	1.95	1.80	4.50	5.45	4.15
2.....	3.55	2.30	1.40	1.15	1.00	1.30	1.75	1.95	1.90	4.90	5.30	3.75
3.....	3.30	2.40	1.35	1.20	1.00	1.40	1.80	1.95	1.80	5.10	5.15	3.70
4.....	3.20	2.25	1.40	1.20	1.00	1.60	1.80	1.95	1.80	5.35	5.10	3.65
5.....	3.30	2.25	1.30	1.25	1.00	1.55	1.80	1.95	1.85	5.45	5.05	3.65
6.....	3.35	2.10	1.45	1.15	1.00	1.55	1.80	1.95	1.85	5.60	5.00	3.60
7.....	3.30	2.15	1.35	1.20	1.05	1.50	1.85	2.00	1.85	5.70	4.95	3.60
8.....	3.30	2.05	1.30	1.20	1.20	1.55	1.85	1.95	1.90	5.75	4.95	3.60
9.....	3.25	2.05	1.15	1.00	1.20	1.75	1.80	1.95	1.90	5.75	4.80	3.50
10.....	3.25	2.05	1.20	1.05	1.00	1.75	1.75	1.95	1.85	5.65	4.60	3.50
11.....	3.25	2.10	1.25	1.05	.90	1.70	1.75	1.95	1.85	5.65	4.60	3.50
12.....	3.25	2.05	1.35	1.05	.90	1.70	1.85	1.90	1.90	5.65	4.55	4.00
13.....	3.20	2.00	1.25	1.40	.85	1.70	1.80	1.90	1.95	5.60	4.55	4.25
14.....	3.10	1.95	1.15	.85	.85	1.80	1.80	1.90	1.90	5.50	4.60	4.40
15.....	3.10	2.00	1.20	1.10	.90	1.80	1.80	1.90	1.90	5.45	4.40	4.35
16.....	3.15	1.95	1.15	.9	.90	1.75	1.85	1.90	1.90	5.35	4.40	4.40
17.....	2.95	1.90	1.30	1.10	1.05	1.80	1.90	1.90	2.00	5.25	4.40	4.35
18.....	2.95	1.90	1.10	.90	.90	1.80	1.90	1.90	1.95	5.20	4.40	4.35
19.....	2.90	1.85	1.05	1.20	.90	1.80	1.85	1.85	1.95	5.10	4.30	4.40
20.....	2.85	1.80	1.05	.95	.80	1.80	1.80	1.85	1.95	5.35	4.15	4.35
21.....	2.80	1.80	1.20	1.00	.80	1.75	1.85	1.85	1.90	5.40	4.10	4.40
22.....	2.75	1.75	1.10	1.05	.90	1.75	1.90	1.80	1.90	5.45	4.10	4.35
23.....	2.70	1.70	1.10	1.10	.95	1.75	1.95	1.80	2.00	5.50	4.20	4.30
24.....	2.70	1.65	1.15	1.10	1.00	1.80	1.95	1.80	2.15	5.45	4.20	4.20
25.....	2.70	1.65	1.10	1.15	.90	1.75	1.95	1.80	2.40	5.50	4.00	4.10
26.....	2.65	1.65	1.10	1.20	.95	1.80	1.95	1.80	2.70	5.55	3.90	4.15
27.....	2.55	1.60	1.25	1.10	1.30	1.80	1.95	1.80	3.05	5.50	3.80	4.00
28.....	2.50	1.55	1.30	1.05	1.15	1.80	1.95	1.80	3.50	5.35	3.80	3.90
29.....	2.60	1.55	1.25	1.35	1.10	1.80	2.00	.....	3.85	5.35	3.80	3.90
30.....	2.55	1.60	1.10	1.20	1.05	1.80	1.95	.....	4.10	5.35	3.75	3.75
31.....	2.40	1.50	.....	1.05	.....	1.85	1.95	.....	4.30	.....	3.80	.....

WOOD CREEK

DESCRIPTION

Wood creek proper rises among the hills in the central part of Washington county, at an elevation of about 300 feet, and flows in a general northerly direction, entering Lake Champlain at Whitehall. It has a number of tributaries, the two larger on the east being Big creek, also called East creek, which enters at Smith's Basin, and Mettawee river, which enters about $1\frac{1}{2}$ miles above Whitehall. Big creek rises in the central part of Washington county at an elevation of about 1,000 feet, descending rapidly for a short distance to South Hartford, then falling slowly to Smith's Basin. Mettawee river is an interstate stream, rising in Dorset mountains, Vermont, crossing the State line into New York at Granville and entering Wood creek about $1\frac{1}{2}$ miles above Whitehall. The drainage basin is a rugged area of rock mostly forest covered and tributaries are rather numerous and branching, there being no lakes or marshes. The principal tributary on the west is Halfway creek, entering Wood creek near Fort Ann. This creek with its tributaries is the outlet of Glen lake and several smaller lakes and ponds in the hilly region to the north of Glens Falls.

Wood creek flows through a by-pass at lock No. 9, passing over a concrete spillway that has a crest length of 50 feet at elevation 131.0 and enters the lower pool of the Barge canal just below lock No. 9. From this point to Lake Champlain it has been canalized as a part of the Barge canal system.

WOOD CREEK ABOVE DAM AT SMITH'S BASIN

This station, established October 24, 1916, is located above the spillway at lock No. 9. The gage, No. 122, is a standard Type A gage, having a range of 6 feet, between elevations 132.0 and 138.0, secured to the west wing of the spillway. A standard bench-mark plug is set near the gage at elevation 137.0 (B. C. datum).

It is read twice daily—morning and afternoon—two hundredths.

Daily elevation of water-surface (B. C. datum) of WOOD CREEK ABOVE DAM AT SMITH'S BASIN, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					132.69	133.38	132.66	132.66	133.23	132.94	132.69	132.73
2					132.67	133.10	132.62	132.67	133.00	133.12	132.86	132.70
3					132.66	132.90	132.62	132.68	132.99	133.06	132.78	132.69
4					132.66	132.86	132.62	132.68	132.91	132.92	132.72	132.68
5					132.68	132.88	132.64	132.68	132.88	132.86	132.72	132.67
6					132.76	132.90	132.74	132.68	132.89	132.85	132.86	132.66
7					132.74	132.82	132.84	132.68	132.89	132.89	132.80	132.68
8					132.70	132.70	132.82	132.66	132.87	132.87	132.76	132.86
9					132.69	132.76	132.80	132.66	132.82	133.28	132.71	132.87
10					132.69	133.01	132.79	132.66	132.80	132.74	132.70	132.76
11					132.70	132.84	132.85	132.65	132.80	132.70	132.70	133.22
12					132.66	132.80	132.95	132.66	132.80	132.72	132.69	133.91
13					132.66	132.80	132.92	132.77	132.90	132.70	132.68	133.33
14					132.67	132.75	132.88	132.74	132.93	132.70	132.68	133.03
15					132.68	132.80	132.92	132.70	133.42	132.70	132.66	132.90
16					132.69	132.79	132.98	132.68	133.14	132.68	132.64	132.81'
17					132.68	132.78	133.07	132.68	133.19	132.68	132.64	132.78
18					132.67	132.72	133.04	132.68	133.21	132.67	132.64	132.76
19					132.69	132.68	132.94	132.68	133.36	132.68	132.63	132.75
20					132.75	132.66	132.94	132.68	133.10	132.76	132.62	132.77
21					132.77	132.64	132.95	132.66	133.12	132.95	132.62	132.60
22					132.74	132.65	132.80	132.66	133.30	132.80	132.62	132.68
23					132.75	132.78	132.76	132.65	133.56	132.74	132.64	132.66
24				132.84	133.14	132.82	132.72	132.66	133.84	132.72	132.65	132.69
25				132.79	133.11	132.82	132.73	132.65	134.26	132.69	132.63	132.68
26				132.77	132.88	132.79	132.68	132.65	134.76	132.67	132.62	132.66
27				132.72	132.78	132.74	132.71	132.70	133.56	132.69	132.62	132.66
28				132.70	132.77	132.70	132.72	133.30	133.82	132.70	132.62	132.66
29				132.68	132.77	132.69	132.70	.....	133.23	132.69	132.75	132.68
30				132.65	133.48	132.72	132.70	.....	133.08	132.72	132.89	132.72
31				132.66	.....	132.70	132.67	.....	133.00	.....	132.82	.....

BARGE CANAL ABOVE LOCK No. 9, AT SMITH'S BASIN

This station, established October 24, 1916, gives pool elevations on the summit level between locks Nos. 8 and 9. The gage, No. 120, is a standard Type A gage, having a range of 4 feet, between elevations 137.0 and 141.0, secured to the east lock wall at the upper end of the upper gate recess. A standard bench mark-plug is set near the gage at elevation 142.0 (B. C. datum).

During the navigation season it is read twice daily—morning and afternoon—to hundredths. During the winter the water drops below the gage, the supply from the Glens Falls feeder being shut off.

Daily elevation of water-surface (B. C. datum) of BARGE CANAL ABOVE LOCK No. 9, AT SMITH'S BASIN, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					139.48	139.30					139.48	139.62
2					139.39	138.77					139.30	139.63
3					139.20	139.22					138.80	139.64
4					139.46	139.04					139.33	139.52
5					138.67	139.25					138.72	139.50
6					139.34	139.42					139.38	139.02
7					139.52	139.19					138.80	139.30
8					139.53	138.79					139.56	139.28
9					139.42	137.83					139.06	139.10
10					139.40	137.30					139.29	139.04
11					139.18						139.32	139.65
12					139.00						139.16	139.30
13					139.00						138.74	139.45
14					139.26						139.26	139.30
15					139.03					129.08	138.78	139.12
16					139.14					129.12	139.24	139.03
17					139.24					129.12	139.18	139.36
18					139.21					129.07	139.55	139.30
19					139.35					128.72	139.15	139.18
20					138.92					128.92	139.17	138.78
21					138.79					129.24	139.41	139.49
22					138.90					129.41	139.58	138.95
23					139.18					131.34	139.28	138.95
24				139.30	139.77					135.73	139.02	139.22
25				139.26	139.05					138.47	138.92	138.92
26				139.20	138.82					139.60	139.50	139.52
27				139.25	138.64					139.22	138.63	139.15
28				139.14	138.98					139.02	139.23	139.38
29				139.27	139.34					139.35	139.48	139.08
30				139.32	139.29					139.14	139.50	139.60
31				139.10							139.45	.....

NOTE.—Water below gage, December 11 to April 14, inclusive.

WOOD CREEK BELOW LOCK No. 9, AT SMITH'S BASIN

This station, established October 24, 1916, gives the elevation of the lower pool at lock No. 9. The gage, No. 121, is a standard Type A gage, having a range of 4 feet, between elevations 123.0 and 127.0, secured to the east lock wall at the upper end of the lower gate recess. A standard bench-mark plug is set in the wall above the gage at elevation 142.0 (B. C. datum).

The gage is read twice daily—morning and afternoon—to hundredths.

Daily elevation of water-surface (B. C. datum) of BARGE CANAL BELOW LOCK No. 9, AT SMITH'S BASIN, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.					124.34	125.33	124.24	124.29	124.69	124.88	124.48	124.44
2.					124.35	124.84	124.24	124.26	124.53	125.24	124.50	124.42
3.					124.31	124.65	124.31	124.47	124.52	125.21	124.56	124.41
4.					124.32	124.56	124.32	124.24	124.48	124.98	124.48	124.46
5.					124.41	124.61	124.30	124.22	124.42	124.76	124.54	124.42
6.					124.39	124.61	124.62	124.20	124.42	124.75	124.50	124.45
7.					124.36	124.55	124.58	124.20	124.36	124.76	124.54	124.41
8.					124.28	124.47	124.60	124.23	124.37	124.62	124.48	124.61
9.					124.34	124.46	124.60	124.22	124.33	124.57	124.45	124.80
10.					124.31	124.85	124.55	124.22	124.38	124.53	124.40	124.67
11.					124.30	124.70	124.50	124.24	124.37	124.49	124.45	125.37
12.					124.38	124.62	124.45	124.24	124.42	124.44	124.42	126.90
13.					124.36	124.60	124.42	124.24	124.51	124.44	124.50	125.30
14.					124.29	124.60	124.58	124.23	124.66	124.39	124.38	125.10
15.					124.42	124.60	124.84	124.22	124.60	124.40	124.50	124.86
16.					124.30	124.39	124.87	124.22	124.60	124.38	124.32	124.71
17.					124.28	124.40	124.64	124.22	124.98	124.39	124.40	124.66
18.					124.26	124.36	124.51	124.22	125.16	124.42	124.32	124.60
19.					124.28	124.30	124.46	124.22	125.07	124.50	124.32	124.53
20.					124.49	124.30	124.41	124.22	124.84	124.48	124.32	124.12
21.					124.42	124.30	124.40	124.20	124.80	124.81	124.34	123.94
22.					124.21	124.34	124.41	124.20	125.38	124.63	124.32	124.40
23.					124.39	124.67	124.34	124.20	125.72	124.48	124.35	124.32
24.				124.45	125.05	124.45	124.29	124.20	*	124.62	124.40	124.58
25.				124.35	124.82	124.44	124.32	124.24	*	124.51	124.46	124.50
26.				124.35	124.45	124.42	124.30	124.29	126.76	124.45	124.30	124.48
27.				124.35	124.46	124.35	124.32	124.54	126.60	124.42	124.41	124.40
28.				124.30	124.45	124.34	124.31	124.89	*	124.46	124.49	124.40
29.				124.33	124.43	124.33	124.30		125.42	124.40	124.56	124.45
30.				124.29	125.98	124.28	124.28		125.18	124.48	124.80	124.50
31.				124.31		124.30	124.30		125.04		124.50	

* Water above gage.

WOOD CREEK ABOVE LOCK No. 11, NEAR COMSTOCK

This station, established October 29, 1916, is located at lock No. 11, about $\frac{3}{4}$ mile north of Comstock. The gage, No. 123, is a standard Type A gage, having a range of 4 feet, between elevations 122.0 and 126.0, secured to the upper end of the upper gate recess of the east lock wall. A standard bench-mark plug is located near the gage at elevation 129.0 (B. C. datum).

The gage is read twice daily — between 6 and 7 A. M. and 6 and 7 P. M.— to hundredths.

Daily elevation of water-surface (B. C. datum) of BARGE CANAL ABOVE LOCK No. 11, NEAR COMSTOCK, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					124.25	124.74	124.21	124.22	124.70	124.88	124.42	124.42
2					124.32	124.82	124.21	124.22	124.53	125.20	124.56	124.32
3					124.32	124.58	124.19	124.30	124.41	125.08	124.50	124.35
4					124.25	124.60	124.29	124.36	124.36	124.86	124.44	124.40
5					124.14	124.59	124.28	124.30	124.26	124.69	124.42	124.34
6					124.32	124.56	124.56	124.25	124.28	124.66	124.49	124.36
7					124.38	124.44	124.51	124.22	124.30	124.71	124.48	124.39
8					124.34	124.47	124.38	124.29	124.32	124.62	124.46	124.61
9					124.25	124.40	124.39	124.28	124.20	124.50	124.41	124.68
10					124.22	124.75	124.37	124.20	124.35	124.49	124.37	124.60
11					124.26	124.60	124.21	124.19	124.34	124.47	124.42	125.21
12					124.24	124.51	124.20	124.20	124.33	124.41	124.35	126.56
13					124.21	124.48	124.28	124.18	124.47	124.41	124.36	125.70
14					124.25	124.39	124.46	124.20	124.57	124.35	124.36	125.05
15					124.36	124.31	124.82	124.20	124.55	124.34	124.42	124.76
16					124.28	124.34	124.69	124.19	124.58	124.31	124.36	124.66
17					124.25	124.25	124.59	124.22	124.22	124.36	124.34	124.58
18					124.25	124.22	124.47	124.20	124.60	124.36	124.32	124.54
19					124.24	124.22	124.39	124.16	124.91	124.41	124.24	124.46
20					124.42	124.22	124.35	124.21	124.69	124.58	124.31	124.14
21					124.38	124.27	124.32	124.21	124.60	124.78	124.25	123.84
22					124.29	124.28	124.35	124.23	125.16	124.55	124.29	123.88
23					124.23	124.51	124.32	124.19	125.52	124.48	124.31	124.30
24					125.75	124.55	124.30	124.20	126.95	124.44	124.38	124.44
25					124.38	124.43	124.30	124.24	126.56	124.42	124.30	124.46
26					124.48	124.39	124.28	124.28	126.24	124.36	124.26	124.42
27					124.49	124.30	124.28	124.52	125.89	124.36	124.25	124.41
28					124.34	124.30	124.29	124.83	126.25	124.43	124.30	124.36
29				124.32	124.21	124.25	124.29		124.85	124.42	124.44	124.38
30				124.32	125.59	124.26	124.30		125.13	124.42	124.74	124.53
31				124.15		124.18	124.28		124.94		124.54	

WOOD CREEK BELOW LOCK No. 11, NEAR COMSTOCK

This station, established October 29, 1916, is located at lock No. 11, about $\frac{3}{4}$ mile north of Comstock. The gage, No. 124, is a standard Type A gage, having a range of 4 feet, between elevations 110.0 and 114.0, secured to the upper end of the lower gate recess of the east lock wall. A standard bench-mark plug is located near the gage at elevation 129.0 (B. C. datum).

The gage is read twice daily — between 6 and 7 A. M. and 6 and 7 P. M. — to hundredths.

Daily elevation of water-surface (B. C. datum) of BARGE CANAL BELOW LOCK No. 11, NEAR COMSTOCK, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					111.82	112.20	112.28	112.11	112.40	112.32	112.16	112.09
2					111.75	112.18	112.22	112.05	112.25	112.47	112.22	112.22
3					111.96	112.18	112.08	111.94	112.25	112.46	112.20	112.14
4					111.92	112.35	112.20	112.30	112.24	112.45	112.12	112.12
5					112.24	112.33	112.36	112.03	112.25	112.67	112.12	112.20
6					112.12	112.40	112.59	111.92	111.39	112.38	112.22	112.20
7					112.24	112.33	112.38	111.72	112.30	112.55	112.15	112.08
8					112.42	112.28	112.24	111.48	112.30	112.24	112.09	112.42
9					111.99	112.42	112.33	111.52	112.35	112.35	112.18	112.32
10					112.02	112.44	112.39	111.50	112.34	112.30	112.24	112.28
11					112.20	112.28	111.99	112.10	112.27	112.12	112.28	112.60
12					112.36	112.36	112.15	111.85	112.08	112.15	112.38	113.29
13					112.08	112.22	112.08	111.20	112.44	112.16	112.38	112.20
14					112.16	112.26	112.48	110.62	112.39	112.10	112.25	112.06
15					112.30	112.30	112.54	109.80	112.32	112.11	112.30	112.25
16					111.85	112.29	112.45	109.02	112.38	112.04	112.18	112.34
17					112.04	111.92	112.20	108.62	112.42	111.99	112.15	112.26
18					112.08	111.50	112.19	109.82	112.34	112.01	112.10	112.22
19					112.22	111.85	112.14	110.75	112.49	112.22	112.16	112.20
20					111.98	112.22	112.28	109.32	112.32	112.38	112.15	112.25
21					112.15	112.10	112.27	110.14	112.41	112.45	112.10	111.90
22					111.92	112.38	112.29	109.50	112.56	112.24	112.02	111.96
23					112.07	112.20	112.05	109.00	112.74	112.14	112.06	112.11
24					113.05	112.18	112.12	109.00	115.50	112.24	112.14	112.15
25					112.52	112.22	112.13	109.00	114.68	112.10	112.00	112.10
26					112.06	112.10	112.13	109.50	113.76	111.91	112.15	112.25
27					112.09	112.25	112.26	112.61	113.10	112.25	112.12	112.00
28					112.07	112.22	112.23	112.27	113.45	112.35	112.10	112.09
29				112.14	112.24	112.32	111.96		113.13	112.25	112.25	112.15
30				112.00	112.82	112.34	112.25		112.54	111.98	112.36	112.14
31				111.94		112.28	112.16		112.38		112.05	

WOOD CREEK ABOVE LOCK No. 12, AT WHITEHALL

This station, established October 1, 1916, is located at the upper end of lock No. 12. The gage, No. 125, is a standard Type A gage, secured to the upper end of the east upper gate recess and has a range of 4 feet, between elevations 110.0 and 114.0. A standard bench-mark plug is set in the wall above the gage at elevation 118.0 (B. C. datum).

The gage is read twice daily — morning and afternoon — to tenths, with occasional readings to half-tenths.

Daily elevation of water-surface (B. C. datum) of BARGE CANAL ABOVE LOCK No. 12, AT WHITEHALL, for the year ended June 30, 1917

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1				112.20	111.80	112.10	112.15	111.95	112.05	112.00	112.00	112.00
2				112.60	111.80	112.15	111.95	111.80	112.10	112.20	112.10	112.02
3				112.60	111.85	112.08	111.90	111.80	111.95	112.15	112.05	112.00
4				111.85	111.90	112.25	111.95	112.15	111.95	112.00	111.95	111.90
5				111.75	112.15	112.30	112.10	111.80	111.90	112.20	112.00	112.00
6				111.35	112.00	112.25	112.40	111.70	111.55	112.25	112.10	112.00
7				111.60	112.10	112.20	112.28	111.58	112.25	112.25	111.95	111.95
8				111.60	112.10	112.10	112.08	111.55	112.10	112.10	111.95	112.25
9				111.70	112.00	112.25	112.10	111.45	112.12	112.10	112.08	112.15
10				111.60	111.92	112.25	112.15	111.48	112.10	112.05	112.10	112.05
11				111.60	111.90	112.15	111.75	111.80	111.90	112.05	112.10	112.15
12				111.15	112.15	112.08	112.00	111.55	111.85	112.00	112.12	111.70
13				111.20	111.80	112.10	112.20	111.55	112.28	112.00	112.10	111.65
14				111.10	112.00	112.02	112.32	110.25	112.05	112.05	112.10	111.80
15				111.45	112.10	111.95	112.35	109.50	112.10	112.00	112.10	112.05
16				111.95	111.90	112.10	111.95	108.65	112.15	111.90	112.05	112.10
17				111.90	111.90	a	112.05	108.45	112.10	111.82	112.00	112.08
18				111.72	112.00		112.05	110.15	111.90	111.90	111.95	112.05
19				111.50	112.28		111.90	110.00	111.85	112.05	112.00	111.95
20				112.15	111.80		112.20	109.90	112.05	112.15	112.00	112.15
21				112.80	112.10		112.05	109.15	112.05	112.25	111.88	111.88
22				112.25	111.80		112.10	108.50	112.10	112.10	111.88	111.80
23				112.00	111.95		111.95	108.10	112.00	112.00	111.95	112.00
24				111.90	112.42		111.95	107.98	112.40	112.05	111.95	112.05
25				112.00	112.20		111.98	109.40	112.15	111.95	111.85	111.95
26				111.95	112.05		111.92	110.25	111.95	111.80	111.95	112.05
27				112.05	111.80		112.05	111.85	111.95	112.15	111.90	111.85
28				112.10	112.15		112.05	112.00	111.80	112.12	111.90	112.00
29				112.00	112.12		111.80		112.29	112.05	111.95	112.00
30				111.85	112.30		112.10		112.10	111.95	112.15	111.80
31				111.85			112.15		112.10		111.98	.....

a No record.

LAKE GEORGE

For the purpose of determining the rate of change and the range in elevation of the water-surface of the lake, gages were established on Lake George in July, 1913, at three points — Lake George, Sagamore (Bolton Landing) and Rogers Rock — by the United States Geological Survey in coöperation with the New York State Conservation Commission.

The gages were not set to any particular datum, but each was referred to a substantial bench-mark by the use of an engineer's level. The gages were read once each day to the nearest half-tenth and the force and direction of the wind recorded.

A comparative study of these gage heights and those obtained at the mill of the International Paper Company indicates that the zeros of all three gages are below the crest of the dam as follows:

Lake George	4.75 feet below crest
Sagamore	4.9 feet below crest
Rogers Rock	3.4 feet below crest

All three gages were read until June 30, 1914. Comparison of the records up to this date showed that one gage would indicate the mean elevation of the lake and the observations at Lake George and Sagamore were discontinued July 1, 1914.

LAKE GEORGE AT ROGERS ROCK

Location.—At a boat-house in a small bay on the north side of the steamboat landing at Rogers Rock, Essex county.

Drainage area.—Not measured.

Records available.—July 10, 1913, to June 30, 1917.

Gage.—Vertical staff fastened to a pile in the back end of the boat-house. Datum, 3.15 feet * below crest of dam at outlet of lake. Gage read once daily by George O. Cook.

Extremes of stage.—Current year: Maximum stage recorded, 4.05 feet, June 14, 15, 18 and 21. Minimum stage recorded, 1.2 feet, November 21 and December 22.

1913–1917: Maximum stage recorded, 4.98 feet on May 2, 1914. Minimum stage recorded, 1.2 feet on November 21 and December 22, 1916.

*This figure determined by actual levels and supersedes the estimated figure previously published.

Regulation.—The elevation of lake surface is regulated by the operation of gates and wheels at the dam at the outlet of the lake at Ticonderoga.

Coöperation.—Station established by the United States Geological Survey in coöperation with the State Conservation Commission. Gage heights for current year furnished by International Paper Company.

Daily gage height, in feet, of LAKE GEORGE AT ROGERS ROCK, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.5	3.1	2.45	2.05	1.52	1.38	1.4	1.7	1.65	2.48	3.18	3.2
2.....	3.48	3.1	2.4	2.02	1.55	1.32	1.35	1.72	1.6	2.5	3.25	3.12
3.....	3.5	3.08	2.4	1.92	1.52	1.35	1.3	1.7	1.62	2.7	3.2	3.15
4.....	3.48	3.02	2.35	1.95	1.5	1.4	1.32	1.72	1.6	2.8	3.12	3.18
5.....	3.5	3.05	2.3	1.98	1.5	1.42	1.35	1.65	1.58	2.88	3.12	3.15
6.....	3.5	2.98	2.35	1.92	1.48	1.5	1.42	1.7	1.55	2.88	3.1	3.1
7.....	3.52	3.0	2.35	1.90	1.52	1.4	1.45	1.68	1.6	2.98	3.15	3.15
8.....	3.48	2.95	2.3	1.95	1.5	1.38	1.42	1.65	1.65	3.0	3.2	3.2
9.....	3.42	2.9	2.2	1.85	1.48	1.38	1.4	1.68	1.68	3.02	3.18	3.2
10.....	3.5	2.9	2.1	1.82	1.45	1.38	1.3	1.65	1.68	3.0	3.22	3.22
11.....	3.48	2.9	2.3	1.82	1.42	1.4	1.35	1.65	1.7	2.98	3.18	3.25
12.....	3.48	2.88	2.22	1.80	1.35	1.35	1.38	1.65	1.68	3.0	3.1	3.8
13.....	3.45	2.82	2.2	1.82	1.3	1.32	1.4	1.7	1.6	3.02	3.08	4.0
14.....	3.45	2.8	2.18	1.70	1.38	1.4	1.5	1.7	1.62	3.0	3.1	4.05
15.....	3.5	2.82	2.2	1.72	1.3	1.35	1.52	1.68	1.68	3.0	3.0	4.05
16.....	3.48	2.72	2.2	1.68	1.35	1.42	1.58	1.72	1.68	3.05	3.1	4.0
17.....	3.4	2.7	2.22	1.88	1.35	1.35	1.62	1.7	1.7	3.0	3.05	3.98
18.....	3.42	2.7	2.25	1.52	1.35	1.4	1.68	1.65	1.75	3.0	3.02	4.05
19.....	3.4	2.68	2.18	1.68	1.38	1.35	1.68	1.62	1.72	3.0	3.1	4.02
20.....	3.38	2.65	2.15	1.6	1.15	1.32	1.7	1.6	1.7	3.05	3.0	4.0
21.....	3.35	2.62	2.18	1.75	1.2	1.3	1.8	1.55	1.65	3.12	3.0	4.05
22.....	3.4	2.6	2.15	1.7	1.3	1.2	1.72	1.6	1.68	3.18	3.02	4.0
23.....	3.35	2.6	2.1	1.72	1.3	1.3	1.7	1.65	1.7	3.2	3.05	3.98
24.....	3.32	2.62	2.08	1.7	1.35	1.4	1.75	1.65	1.75	3.15	3.02	3.95
25.....	3.35	2.55	2.05	1.78	1.4	1.42	1.72	1.6	1.8	3.12	3.0	3.95
26.....	3.3	2.58	2.02	1.72	1.3	1.35	1.72	1.65	1.9	3.1	3.02	3.98
27.....	3.25	2.55	2.08	1.68	1.3	1.42	1.68	1.6	2.0	3.15	3.0	4.0
28.....	3.22	2.55	2.02	1.65	1.35	1.4	1.7	1.62	2.2	3.12	3.02	3.92
29.....	3.25	2.58	2.02	1.6	1.4	1.35	1.72	.....	2.38	3.12	3.1	3.98
30.....	3.27	2.5	2.0	1.5	1.4	1.3	1.75	.....	2.4	3.15	3.08	4.02
31.....	3.15	2.48	.....	1.52	.....	1.35	1.72	.....	2.45	.....	3.18	.....

AUSABLE RIVER

DESCRIPTION

Ausable river is formed by the junction of the east and west branches, which have their headwaters in the northwestern part of Essex county. The east branch flows from upper Ausable lake, at an elevation of 1,990 feet above sea-level. The west branch, formed by several small streams that lie in the valley to the west and north of the east branch, receives the outflow from Lake Placid at elevation 1,864 feet. Both branches flow north and east to their junction at the village of Ausable Forks, about 20 miles from the mouth of the stream along the river, from which point the river flows northeast, entering Lake Champlain about 10 miles south of Plattsburg and opposite and slightly north of the city of Burlington, Vt. In this twenty miles a total descent of 460 feet occurs, a portion of which is in the famous Ausable chasm.

The drainage basin of Ausable river occupies a plateau at a general elevation of 800 to 1,200 feet, the mountainous boundaries of the watershed rising to altitudes of 3,000 to 5,000 feet. Throughout the entire course, the river is fed by small mountain streams that enter at nearly right angles from the mountains on either side. There are few lakes in this drainage area to act as regulators of the flow, and, owing to the great differences of elevation throughout the area, the stream has what is called a flashy discharge, its fluctuations being large and rapid.

Owing to the fact that this basin lies on the eastern slope of the Adirondack mountains, the average rainfall is less than for those basins whose streams rise on the western and southern slopes, the mean yearly precipitation being about 32 inches.

Drainage areas of AUSABLE RIVER *

LOCATION	AREA	
	Place to place	Total
	Square miles	Square mile.
Lake Placid, water-surface.....	.....	3.80
Lake Placid, drainage area.....	21.80	21.80
West branch from foot of Lake Placid to junction with east branch..	211.20	233.00
East branch above forks.....	196.90	429.90
Above gaging station.....	40.10	470.00
Gaging station to Keeseville.....	6.10	476.10
Keeseville to Birmingham.....	27.40	503.50
Birmingham to mouth.....	17.80	521.30

* From Willsboro, Ausable, Lake Placid, Mount Marcy, and Elizabethtown sheets of the United States Geological Survey topographic maps.

AUSABLE RIVER AT AUSABLE FORKS

Location.—In the village of Ausable Forks, Clinton county, immediately below the junction of the east and west branches and about 15 miles above the mouth of the river.

Drainage area.—444 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—August 17, 1910, to June 30, 1917.

Gage.—Chain on left bank about 1,000 feet below junction of east and west branches. Gage read by A. S. Baker.

Discharge measurements.—Made from a cable about $1\frac{1}{2}$ miles below gage, or by wading either near the cable or a short distance above the gage.

Channel and control.—Stone and gravel, occasionally shifting. Channel divided by an island opposite the gage.

Extremes of discharge.—Current year: Maximum stage recorded 6.95 feet at 6 P. M., April 2; discharge, 7,580 second-feet. Minimum stage recorded, 3.45 feet at 8 A. M. and 6 P. M., August 27; discharge, 137 second-feet.

1910–1917: Maximum stage recorded, 10.2 feet in the evening of March 27, 1913; discharge, approximately 25,000 second-feet. Minimum stage recorded, 3.0 feet at 7 A. M., July 21, 1912; discharge, practically zero.

Special study.—A portable water-stage recorder was installed at this station and a continuous gage height record obtained, July 11 to September 30, 1914, which showed a continual small fluctuation in stage. It was shown that monthly mean discharge based on semidaily gage heights is in error, as follows: July 11 to 31, 3.5 per cent; August, 4.1 per cent; September, 0.5 per cent. Some of the daily discharges showed greater errors, but these were largely compensating.

Ice.—Stage-discharge relation slightly affected by ice.

Accuracy.—Stage-discharge relation probably permanent between dates of shifting. Affected by ice for short periods from December to March. Rating curve fairly well defined between 175 and 3,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results fairly good.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of AUSABLE RIVER AT AUSABLE FORKS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 7.....	A. H. Davison.....	3.54	182
Oct. 17.....	C. C. Covert.....	3.67	287
Jan. 22 a.....	A. H. Davison.....	3.90	274
Feb. 16 a.....	A. H. Davison.....	3.74	170
Mar. 14 a.....	A. H. Davison.....	3.64	213
April 5.....	O. W. Hartwell.....	4.99	2,280
April 5.....	O. W. Hartwell.....	4.97	2,210

a Measurement made through complete ice cover.

Daily discharge, in second-feet, of AUSABLE RIVER AT AUSABLE FORKS, during the year ended June 30, 1917

DAT	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	515	272	157	484	287	1,100	260	160	460	2,490	1,160	2,160
2.....	446	257	148	371	280	776	260	160	380	6,800	1,200	1,620
3.....	417	257	221	287	336	526	260	220	340	5,390	1,100	2,490
4.....	1,030	242	202	242	336	465	260	280	250	3,190	1,350	2,160
5.....	1,730	242	208	196	302	851	260	300	260	2,160	851	1,440
6.....	1,070	242	202	208	319	1,350	300	220	220	1,830	800	1,440
7.....	1,070	214	202	189	280	825	340	160	220	1,730	739	1,160
8.....	567	208	189	202	272	634	300	120	200	1,440	1,100	1,730
9.....	484	319	196	214	302	702	300	120	200	984	599	1,530
10.....	426	336	189	208	484	1,070	340	180	180	800	739	1,620
11.....	465	272	196	221	465	668	280	130	180	851	727	5,310
12.....	851	250	189	214	388	600	280	320	220	679	1,200	5,600
13.....	1,030	242	189	202	336	420	200	240	220	1,260	1,160	2,840
14.....	825	227	189	234	272	360	180	220	220	764	984	1,830
15.....	825	214	280	319	234	300	650	220	220	578	1,100	1,620
16.....	436	196	851	272	242	260	550	260	220	557	929	1,130
17.....	634	202	354	302	221	240	500	120	260	567	903	984
18.....	679	189	257	302	250	220	360	110	240	588	1,070	1,040
19.....	567	214	234	250	227	220	440	220	240	955	2,070	702
20.....	505	189	214	407	272	200	340	170	280	2,490	3,070	679
21.....	388	177	189	1,260	196	200	280	160	240	6,190	1,940	1,440
22.....	354	164	202	788	234	200	280	170	319	5,310	1,260	567
23.....	1,030	157	465	557	264	200	320	180	465	3,320	1,530	484
24.....	751	177	567	426	1,730	200	220	130	1,060	3,070	1,440	1,230
25.....	955	196	371	354	750	200	140	120	1,260	1,730	1,260	2,050
26.....	890	170	302	354	550	240	140	160	1,440	1,440	1,260	484
27.....	505	137	242	319	400	426	140	800	2,380	1,210	1,350	345
28.....	426	157	202	264	340	354	130	500	3,950	1,100	727	319
29.....	388	183	196	242	360	300	140	.....	2,050	1,130	1,530	336
30.....	302	163	727	214	1,130	280	150	.....	1,350	1,440	3,320	2,050
31.....	272	177	.....	257	.....	280	130	.....	998	.....	3,320	.....
Mean...	672	214	278	334	402	473	282	218	663	2,080	1,350	1,610

NOTE.— Discharge, November 25 to 29, December 12 to 26, and December 29 to March 21, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of AUSABLE RIVER AT AUSABLE FORKS, for the year ended June 30, 1917

[Drainage area, 444 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,730	272	672	1.51	1.74
August.....	336	137	214	0.482	0.56
September.....	851	148	278	0.626	0.70
October.....	1,260	189	334	0.752	0.87
November.....	1,730	196	402	0.905	1.01
December.....	1,350	200	473	1.07	1.23
January.....	650	130	282	0.635	0.73
February.....	800	100	218	0.491	0.51
March.....	3,950	180	663	1.49	1.72
April.....	6,800	557	2,080	4.68	5.22
May.....	3,320	727	1,350	3.04	3.50
June.....	5,600	319	1,610	3.63	4.08
The year.....	6,800	100	715	1.61	21.84

WEST BRANCH OF AUSABLE RIVER NEAR NEWMAN

Location.— On the farm of James Dudley, about 4 miles north-east of Newman, Essex county, and about 4 miles below its confluence at Lake Placid.

Drainage area.— 116 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.— June 7, 1916, to June 30, 1917.

Gage.— Staff, in two sections, on the right bank near the residence of Mr. Dudley. Lower section is inclined, graduated from 1.0 foot to 6.5 feet; the upper section is vertical, graduated from 6.55 feet to 10.1 feet. Gage read by James Dudley.

Discharge measurements.— Made by wading at low stages and from a cable, about 300 feet above gage, at medium and high stages.

Channel and control.— Solid rock.

Extremes of stage.— Maximum stage recorded, 6.2 feet at 6 A. M., June 22. Minimum stage recorded, 1.7 feet at 7 P. M., June 28.

Ice.— Effects of ice not known.

Coöperation.— Station established by the United States Geological Survey in coöperation with the State Conservation Commission.

Sufficient data have not been obtained for computation of discharge.

Discharge measurements of WEST BRANCH OF AUSABLE RIVER NEAR NEWMAN, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 3 a.....	A. H. Davison.....	2.64	61
Jan. 20 b.....	A. H. Davison.....	3.08	105
April 16.....	A. H. Davison.....	3.11	131
April 16.....	A. H. Davison.....	3.22	162

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily gage height, in feet, of WEST BRANCH OF AUSABLE RIVER NEAR NEWMAN, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.02	2.72	2.52	3.12	2.75	3.68	....	....	....	....	3.9	4.25
2.....	3.02	2.7	2.7	2.85	2.9	3.3	....	....	....	....	3.98	4.4
3.....	3.1	2.7	2.6	2.82	2.98	3.52	....	....	....	....	3.8	4.85
4.....	3.72	2.6	2.6	2.72	2.85	3.4	....	....	....	....	3.82	4.1
5.....	4.12	2.65	2.55	2.8	2.82	3.25	....	....	....	....	3.52	3.85
6.....	3.8	2.52	2.52	2.52	2.82	3.95	....	....	....	....	3.48	3.95
7.....	3.28	2.55	2.52	2.72	2.72	3.55	....	....	....	....	3.5	3.68
8.....	3.15	2.68	2.52	2.68	2.7	3.48	....	....	....	....	3.35	4.1
9.....	3.05	3.02	2.6	2.68	3.05	3.45	....	....	....	....	3.28	4.35
10.....	3.12	2.95	2.52	2.68	3.35	3.85	....	....	....	....	3.52	3.72
11.....	3.48	2.7	2.5	2.65	3.1	3.55	....	....	....	....	3.45	4.52
12.....	3.48	2.72	2.52	2.5	2.88	3.38	....	....	....	....	3.82	5.6
13.....	3.32	2.58	2.40	2.7	2.8	3.05	....	....	....	....	3.78	4.4
14.....	3.78	2.65	3.60	3.22	2.75	3.42	....	....	....	....	3.75	4.08
15.....	3.28	2.6	3.10	2.82	2.88	3.4	....	....	....	....	4.0	3.88
16.....	3.05	2.63	3.28	2.7	2.8	3.2	....	....	....	....	3.65	3.8
17.....	3.72	2.42	2.8	2.85	2.85	2.82	....	....	....	....	3.5	3.75
18.....	3.70	2.46	2.8	2.8	2.72	2.85	....	....	....	....	3.9	3.75
19.....	3.3	2.5	2.7	2.82	2.8	2.8	....	....	....	....	3.6	2.8
20.....	3.12	2.45	2.58	3.68	2.72	2.75	....	....	....	....	4.4	3.8
21.....	2.95	2.48	2.7	4.1	2.52	2.65	....	....	....	....	4.32	4.02
22.....	2.9	2.42	2.62	3.45	2.50	2.65	....	....	....	....	3.8	4.1
23.....	3.58	2.45	3.08	3.15	2.65	2.88	....	....	....	....	4.22	3.98
24.....	3.78	2.55	3.2	2.92	4.95	2.95	....	....	....	....	4.15	3.85
25.....	3.55	2.6	2.9	2.65	3.72	2.75	....	....	....	....	3.88	3.75
26.....	3.3	2.6	2.78	2.9	3.4	2.92	....	....	....	....	3.85	3.8
27.....	3.35	2.42	2.85	2.85	3.15	2.95	....	....	....	....	3.72	3.75
28.....	3.15	2.48	2.52	2.75	3.02	2.98	....	....	....	....	4.02	3.62
29.....	2.98	2.45	2.75	2.65	2.98	2.98	....	....	....	....	4.12	3.52
30.....	2.88	2.4	3.65	2.62	3.82	2.85	....	....	....	....	4.42	4.68
31.....	2.88	2.45	....	2.6	....	2.85	....	....	....	....	4.52	....

NOTE — Observation suspended, January 1 to April 30, inclusive.

SARANAC RIVER

DESCRIPTION

Saranac river rises in southeastern Franklin county and flows northeastward to a point near Cadyville and thence eastward into Lake Champlain at Plattsburg. The southern boundary of the basin is the Ampersand mountain range and the stream drains the north slope of the most elevated region of the state of New York. About 16.2 per cent of the upper drainage area is water-surface. The areas tributary to the river are shown in the following table:

Drainage areas of SARANAC RIVER *

LOCATION	Area	Total area
	<i>Square miles</i>	<i>Square miles</i>
Above Saranac Lake State dam.....		157.50
Above Saranac Lake village.....	44.90	202.40
Above Franklin Falls.....	104.80	306.70
North branch, Saranac river.....	136.60	136.60
At junction, North branch.....		498.80
Above High Falls.....	19.60	518.40
Above Cadyville.....	73.60	593.00
Above Kent Falls.....	2.90	595.90
Above Morrisonville.....	2.00	597.90
Above Lozier dam.....	26.10	624.00
Above mouth.....	5.60	629.60

* From Bien's Atlas of New York. a The U. S. Geological Survey gives the total area above the Lozier dam, measured on the U. S. G. S. topographic maps, as 607 square miles.

The results of gagings of Saranac river at a station formerly maintained at Saranac lake are given in the Report of the State Engineer and Surveyor for 1903, supplement, pages 71-4.

In 1854 a timber dam was built below lower Saranac lake for the purpose of flooding logs. In 1899-1901 a masonry dam and lock were erected by the State at this point.

SARANAC RIVER NEAR PLATTSBURG

Location.—At the Indian rapids power-plant (formerly known as Lozier dam) of the Plattsburg Gas and Electric Company, about 6 miles above the mouth of the river at Plattsburg, Clinton county.

Drainage area.—607 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—March 27, 1903, to June 30, 1917.

Gages.—Crest gage a vertical staff on the angle of the wing wall at the end of the tail-race. Datum raised 0.76 foot, August 20, 1906. Tail-race gage a vertical staff spiked to timber-work dike between tail-race and river and about 50 feet below powerhouse. Datum has changed slightly, due to settling of crib work. Records of kilowatt output are obtained by wattmeter on switch-board at half-hour intervals.

An inclined staff gage at the cable station, about one-quarter mile below the dam.

Discharge measurements.—Made from a cable at head of Indian river, one-quarter mile below the dam. Low-water measurements made by wading under cable or in tail-race. Gages and wattmeters read by power-house operators.

Discharge rating.—Records include flow over concrete spillway 171.25 feet in crest length, a rating for which has been prepared for use of co-efficients* derived from experiments made in the hydraulic laboratory of Cornell University on a model section of the dam; the discharge through two power units equipped with 300 kilowatt generators, which have been rated by current-meter measurements; and the discharge through two 5-foot waste-gates when open.

Occasional observations are made on the inclined staff gage at the cable as a check on the ratings of spillway and turbines.

Extremes of discharge.—Current year: Maximum daily discharge, 5,400 second-feet, April 3. Minimum daily discharge, 195 second-feet, Sunday, October 8.

1908–1917: Maximum daily discharge recorded, 6,410 second-feet, April 20, 1914. Minimum daily discharge recorded, 90 second-feet, September 28, 1914.

* Horton, R. E., Weir experiments, coefficients and formulas, U. S. Geological Survey Water-Supply Paper 200, pages 98–100, 1907.

Special study.— A portable water-stage recorder was operated at the cable for a short period in July, 1914. Mean daily discharge computed from its record compared very closely with mean daily discharge based on power-plant ratings.

Ice.—The crest of the spillway is kept free from ice, so that the stage-discharge relation is not affected.

Regulation.—The lakes and ponds on the main stream and tributaries above the station comprise a water-surface area of about 25.5 square miles. The actual storage afforded by these reservoirs has been largely increased by the State dam at Lower Saranac lake, the operation of which affects the distribution of flow throughout the year.

Accuracy.— Discharge measurements made during the year indicate that the ratings of spillway and turbines have not changed. Discharge over the spillway ascertained by applying to the rating table mean gage heights for 6-hour periods. Discharge through the turbines ascertained by applying to their ratings the mean kilowatt output and head for 12-hour periods. Results fairly good.

Coöperation.—Station maintained by the United States Geological Survey in coöperation with the State Conservation Commission. Gage height records and wattmeter readings furnished by Plattsburg Gas and Electric Company, Herbert A. Stutchbury, Superintendent.

Discharge measurements of SARANAC RIVER NEAR PLATTSBURG, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 7.....	A. H. Davison.....	2.32	716
April 4.....	O. W. Hartwell.....	4.58	4,560
April 4.....	O. W. Hartwell.....	4.53	4,470
April 4.....	O. W. Hartwell.....	4.44	4,240
April 4.....	O. W. Hartwell.....	4.45	4,300
April 6.....	O. W. Hartwell.....	3.98	3,310
April 6.....	O. W. Hartwell.....	3.90	3,000

GAGING OF STREAMS: LAKE CHAMPLAIN BASIN 243

Daily discharge, in second-feet, of SARANAC RIVER NEAR PLATTSBURG, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	740	460	370	230	370	660	460	520	820	3,400	1,250	1,060
2.....	540	540	310	370	400	580	470	560	780	4,600	1,140	1,000
3.....	800	410	215	270	370	500	580	490	660	5,400	1,450	920
4.....	680	450	390	270	330	580	560	350	500	4,300	1,300	1,200
5.....	1,100	500	370	280	270	580	490	500	660	3,500	1,250	740
6.....	880	580	300	250	450	660	680	380	580	3,000	1,120	840
7.....	780	540	245	310	380	640	580	540	540	3,000	1,250	860
8.....	720	450	380	195	420	660	640	580	600	2,350	1,120	1,100
9.....	500	490	310	360	410	600	620	540	600	1,850	1,060	1,300
10.....	720	560	220	380	560	680	660	480	540	1,700	1,080	1,040
11.....	580	470	380	360	410	700	580	300	440	1,220	1,060	1,500
12.....	600	430	270	270	300	800	540	540	540	1,450	1,200	2,600
13.....	620	230	320	360	340	560	460	350	360	1,220	1,140	2,250
14.....	540	460	280	310	410	620	410	460	540	1,200	830	2,000
15.....	560	460	330	270	410	700	640	580	470	1,220	1,020	1,800
16.....	370	300	290	360	380	560	580	600	540	1,160	980	1,450
17.....	660	340	165	300	390	380	620	540	530	1,140	920	1,500
18.....	800	310	280	390	350	640	640	380	480	1,180	980	1,450
19.....	620	360	250	360	310	460	560	480	620	1,350	760	1,350
20.....	460	215	240	380	640	500	540	380	480	1,900	740	1,250
21.....	580	390	270	520	360	680	420	410	500	2,450	800	1,400
22.....	540	300	280	400	310	560	540	390	560	2,800	860	1,240
23.....	600	300	480	680	360	480	420	400	560	2,500	1,100	1,120
24.....	960	310	320	400	430	390	520	460	820	2,300	1,250	920
25.....	780	310	480	400	560	500	560	370	900	2,050	1,080	1,140
26.....	760	330	400	450	230	500	480	480	1,650	1,800	1,180	1,060
27.....	660	230	360	460	450	440	400	560	2,500	1,700	1,060	920
28.....	740	320	260	450	480	560	350	760	3,300	1,700	900	920
29.....	500	360	300	290	520	580	520	.....	3,200	1,400	820	1,100
30.....	360	370	280	500	640	540	460	.....	2,900	1,400	1,100	1,300
31.....	640	440	.....	360	.....	310	540	.....	2,400	.....	1,040	.....
Mean...	657	394	312	361	405	568	533	478	1,010	2,210	1,060	1,280

Monthly discharge of SARANAC RIVER NEAR PLATTSBURG, for the year ended June 30, 1917

[Drainage area, 607 square miles]

MONTH	DISCHARGE IN SECOND-FEET				N-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,100	a 360	657	1.08	1.24
August.....	580	a 215	394	0.649	0.75
September.....	480	a 165	312	0.514	0.57
October.....	680	a 195	361	0.595	0.69
November.....	640	a 230	405	0.667	0.74
December.....	800	a 310	568	0.936	1.08
January.....	680	a 350	533	0.878	1.01
February.....	760	a 300	478	0.787	0.82
March.....	3,300	a 440	1,010	1.66	1.91
April.....	5,400	1,140	2,210	3.64	4.06
May.....	1,450	a 740	1,090	1.75	2.02
June.....	2,600	740	1,280	2.11	2.35
The year.....	5,400	a 165	769	1.27	17.24

a Sunday.

NOTE.— Figures in this table indicate the run-off as regulated by storage at Saranac lake.

HUDSON RIVER DRAINAGE BASIN

DESCRIPTION OF BASIN

The principal sources of the Hudson river lie in the wildest portion of the Adirondack mountains, in Essex county, north-eastern New York. A number of branches, any one of which might possibly be considered the main stream, form its upper waters; but if the highest collected and permanent body of water be assumed as the true head, then the source of the Hudson becomes Lake Tear-of-the-Clouds, which lies at an elevation of 4,322 feet above tide, in the center of the triangle formed by Mount Marcy, Skylight and Gray peaks.

The river flows rather irregularly southward until it reaches the northern boundary of Saratoga county, where it makes a sharp turn and flows eastward for about 12 miles, passing through the mountains and forming, as it cuts across the rocky strata, several falls of great height and beauty. At Hudson Falls, just below Glens Falls, it makes another abrupt turn and flows southward, continuing in this direction until it empties into New York bay.

From Lake Tear-of-the-Clouds to the mouth of the river the distance by water is probably about 300 miles. The total area drained is 13,366 square miles. The river is tidal to Troy, which is also at the head of navigation.

The headwater region is mountainous in character, is in general heavily wooded and is dotted with numerous lakes and ponds. The rocks, belonging to the oldest formation and mainly granitic, are either bare or covered only with a layer of spruce duff, humus and forest litter. The river emerges from the mountain region a few miles west of Glens Falls and from there to Troy the topography is moderately rolling and the soil is chiefly sand. Below Troy the river follows the great depression which extends almost due north and south between New York bay and the St. Lawrence, flowing in an open valley bordered by well-cultivated lands, which rise with moderate slope from the stream. The Catskill Mountain region is reached 20 or 30 miles below Albany and thence to the

mouth of the river the immediate valley is flanked by high hills, the Highlands of Orange county, and the precipitous Palisades being especially noticeable.

The fall in the upper portion of the course is very rapid, amounting to about 64 feet per mile from Lake Tear-of-the-Clouds to the mouth of North creek, a distance of about 52 miles. From the mouth of North creek to the mouth of the Sacandaga the descent is nearly 14 feet per mile, distributed among rapids which diminish in frequency as the Sacandaga is approached. In the succeeding 26 miles to Fort Edward the river descends 418 feet more. One hundred and seventy-five feet is comprised within the three abrupt pitches at Palmer, Glens, and Bakers Falls, while most of the remainder occurs in the rapids between Jessup's Landing and the oxbow above Glens Falls. Between Glens Falls and Troy nearly the entire fall of the river is utilized for the development of water-power. Between Fort Edward and Troy the Hudson river is canalized as part of the Barge canal system for practically the entire distance.

The tributaries of the Hudson are numerous and many of them are large and important. Indian river, Schroon river and the Sacandaga unite with the main stream above Glens Falls and between the latter point and Troy it receives Batten kill, Fish creek, Hoosic river and the Mohawk, the latter having several important tributaries, including West and East Canada and Schoharie creeks. The tributaries below Troy include Catskill, Esopus and Rondout creeks and Wallkill river from the west and Kinderhook creek, Jansen kill, Wappinger creek, Fishkill creek and Croton river from the east.

Below Troy the bed of the Hudson river is depressed below tide-water level. The stage of the stream is controlled by tidal action, by the inflow of the main stream and by the lateral drainage jointly.

The mean annual precipitation on the total basin of the Hudson is probably about 43 inches. It reaches a maximum of more than 55 inches in the heights of the Adirondacks, while in the eastern portion of the drainage area, in southern Vermont, the

mean annual total is only about 39 inches. Conditions during the winter period vary from the extreme cold and deep snow of the Adirondacks to the areas in the southern portion of the basin, which are subject to frequent winter thaws.

The flow of the upper Hudson is controlled to some extent during the dry season by the use of Indian lake storage reservoir. The natural storage facilities in the Adirondack region, tapped on the east and south by the upper Hudson and the Mohawk, are unsurpassed, there being a great many ponds and lakes, many of large size and fed from extensive drainage areas.

The longest run-off record in the Hudson river drainage basin is that obtained at the upper dam at Mechanicville, which extends back to 1888.

HUDSON RIVER

In the following pages will be found tables giving the daily discharge and monthly run-off of the Hudson river above Troy and of its tributaries at a considerable number of locations. These records are derived from various sources, which are indicated for records other than those maintained by this Department.

As to records of the Hudson river and tributaries it can only be said at this time that they are probably more consistent than would appear from a direct comparison. In some cases where the recorded run-off per square mile at adjacent stations differs, it does not necessarily follow that either one of the records is incorrect. There are wide variations in the hydrological conditions in different portions of the upper Hudson drainage basin. For example, the topography, culture, geology and soil for the Hudson and its tributaries above North Creek are all essentially different from the corresponding features of the drainage basin of Saratoga lake outlet. The hydrological features of both the above mentioned basins are essentially different from the corresponding features of the drainage basins of the Batten kill and Hoosic river. The conditions are somewhat further complicated by diversion from the Hudson river to supply the Champlain canal through Glens Falls feeder and at Northumberland dam.

The Hudson river has been canalized for the Barge canal between Troy and Fort Edward with the exception of short distances at Stillwater and Northumberland and between the Fort Miller and Crocker's reef dams, where the canal is located on the east bank for a distance of about 2.5 miles. Four existing dams and three new ones together with the necessary dredging create a series of pools with low-water navigable surfaces at elevation referred to Barge canal datum as follows:—

Above the new Federal dam at Troy, Elev. 15.2.—The old State dam at Troy has been removed, having been replaced by the new Federal dam, completed November 18, 1915, about 1,400 feet further upstream. The old State dam was a timber crib dam with a straight fixed crest about 1,080 feet long at an elevation averaging 13.5 (12.6 M. S. L.) on which flash-boards were usually maintained to Elev. 15.2 (14.3 M. S. L.). The new dam built by the Federal Government and located at the foot of Bond street is a concrete structure of the ogee type. The crest has a broken trace and consists of two main arms, one two feet higher than the other. The east and lower section abuts on the new lock and lies across and normal to the main channel, with a crest length of 586 feet at Elev. 15.2 (14.33 M. S. L.). Provision is made in this lower crest for the use of flash-boards two feet in height. The west and higher section extends obliquely downstream to an ice-pass adjacent to the power head-gates on the west bank. The crest of the higher section is 669 feet long and at Elev. 17.2 (16.33 M. S. L.). The ice-pass, which is in line with the head-gates and parallel to the east section of the dam, provides an opening for the passage of ice, drift, etc., 25.5 feet wide, above Elev. 12.70 (11.83 M. S. L.), which will ordinarily be closed by flash-boards below crest of dam.

Above new dam No. 1, north of Waterford, Elev. 29.5.—This dam, located about 2.9 miles north of or upstream from the Waterford-Troy bridge across the Hudson river, consists of a concrete ogee crest totaling 602.5 feet at Elev. 29.5, having a broken trace made up of two arms. The one adjacent and normal to Barge canal lock No. 1 on the right, or west bank is 100 feet

long, the other, 502.5 feet in length, inclines downstream, abutting on the outer end of a battery of six Taintor gates, each having a clear span of 50 feet with sills at Elev. 15.0 lying normal to the direction of stream flow.

Above the lower dam at Mechanicville, Elev. 48.0.— This is an old dam now used by the Adirondack Electric Power Corporation.

Above the upper dam at Mechanicville, Elev. 67.5.— This is the old dam now used by the West Virginia Pulp and Paper Company, also known as the Duncan dam.

Above the old dam at Stillwater, Elev. 83.5.

Above the old dam at Northumberland, Elev. 102.5.— The river above the old dam at Fort Miller is not canalized.

Above the new dam at Crocker's reef, Elev. 119.0.— This dam is a concrete structure with a straight ogee crest in two sections. The east crest is 480 feet long and the west crest is 280 feet long, a total crest length of 760 feet at Elev. 119.0. This dam has an exceptionally level crest. There are no gates or power-wheels at this location and the entire flow of the river except that portion which is utilized for canal purposes at the Fort Miller lock and in the old Champlain canal, passes over the crest of the dam.

HUDSON RIVER NEAR INDIAN LAKE

Location.— About 1 mile below the mouth of Cedar river, $1\frac{1}{2}$ miles above the mouth of Indian river and 6 miles northeast of Indian Lake village, Hamilton county.

Drainage area.—418 square miles. (Measured on U. S. Geological Survey topographic maps.)

Records available.—August 30, 1916, to June 30, 1917.

Gage.—Gurley printing water-stage recorder on right bank. Inspected by John A. Bolton.

Discharge measurements.—Made from cable about 100 yards below gage or by wading.

Channel and control.— Solid ledge overlain with coarse gravel; probably permanent.

Extremes of discharge.—Maximum stage during year from water-stage recorder, 9.87 feet at 11 A. M., June 12; discharge, 13,500 second-feet. Minimum stage from water-stage recorder, 1.62 feet at 10 A. M. to 10 P. M., October 13; discharge, 109 second-feet.

Ice.—Stage-discharge relation probably somewhat affected by ice.

Regulation.—Some diurnal fluctuation due to logging operations for a short time during the spring months. Seasonal distribution of flow is slightly affected by storage.

Accuracy.—Stage-discharge relation practically permanent; affected by ice from December to March and by logs during the latter part of June. Rating curve fairly well defined between 75 and 600 second-feet and well defined between 600 and 6,000 second-feet. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying mean daily gage height to rating table except when fluctuation required mean of hourly discharge. Results good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of HUDSON RIVER NEAR INDIAN LAKE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		Feet	Sec.-ft.
Aug. 31 a	O. W. Hartwell	1.54	86.7
Aug. 31 a	O. W. Hartwell	1.54	85.9
Jan. 3 b	E. D. Burchard	2.64	280
Jan. 27 b	A. H. Davison	3.01	283
Feb. 20 b	E. D. Burchard	2.71	196
Mar. 17 b	A. H. Davison	3.47	270
April 14	E. D. Burchard	2.98	856
April 14	E. D. Burchard	2.97	840
May 4	E. D. Burchard	5.48	3,960
May 4	E. D. Burchard	5.36	3,660
May 4	E. D. Burchard	4.91	3,020
May 4	E. D. Burchard	3.07	953
May 5	E. D. Burchard	2.89	821
May 5	E. D. Burchard	4.26	2,150
May 6	E. D. Burchard	6.19	4,980
May 6	E. D. Burchard	5.48	3,720
May 7	E. D. Burchard	4.49	2,450
June 22 c	O. W. Hartwell	4.19	1,880
June 23 c	O. W. Hartwell	3.78	1,440

a Measurement made by wading.

b Measurement made under complete ice cover.

c Stage-discharge relation affected by logs on control.

Daily gage height, in feet, of HUDSON RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	1.53	2.20	1.88	3.85	2.65	2.95	3.4	6.0	4.35	3.5
2	1.50	2.32	1.94	3.8	....	2.95	3.4	5.6	4.55	3.95
3	1.51	2.26	1.99	3.5	....	2.95	3.4	5.7	5.1	4.15
4	1.48	2.08	2.07	3.15	2.6	2.95	3.35	5.9	4.4	4.15
5	1.46	1.91	2.10	3.0	2.65	2.95	3.3	5.8	3.5	4.5
6	1.46	1.85	2.10	3.35	2.8	2.9	3.3	5.4	4.2	4.2
7	1.47	1.81	2.07	3.45	2.85	2.85	3.3	4.9	3.65	4.6
8	1.47	1.79	2.05	3.35	2.85	2.8	3.3	4.35	3.75	4.4
9	1.47	1.78	2.04	3.15	2.8	2.8	3.3	3.9	3.65	4.55
10	1.45	....	2.08	3.2	2.75	2.85	3.25	3.5	3.7	4.4
11	1.43	1.79	....	3.15	2.8	2.85	3.3	3.45	3.8	5.5
12	1.43	1.68	3.05	3.05	2.9	2.8	3.4	3.2	3.25	9.0
13	1.44	1.63	2.55	2.85	2.85	2.75	3.45	3.1	3.05	8.0
14	1.48	1.64	....	2.9	2.95	2.75	3.45	2.95	3.6	5.9
15	1.63	1.67	2.9	2.95	3.15	2.8	3.5	2.85	3.45	6.2
16	1.77	1.71	2.65	3.05	3.35	2.8	3.45	2.8	3.7	6.0
17	1.71	1.74	2.46	3.10	3.4	2.75	3.45	2.7	3.7	5.8
18	1.73	1.74	2.25	3.0	3.4	2.7	3.5	2.95	3.25	4.5
19	1.74	1.76	2.13	2.95	3.35	2.7	3.45	3.55	3.85	3.85
20	1.73	....	2.02	3.0	3.3	2.7	3.4	5.05	3.45	3.75
21	1.68	....	....	3.15	3.25	2.75	3.4	6.2	3.8	3.65
22	1.65	2.65	....	3.05	3.25	2.75	3.45	0.6	3.35	4.0
23	1.82	2.55	2.14	3.15	3.2	2.75	3.45	6.8	4.2	3.75
24	1.94	2.39	2.8	3.05	3.15	2.8	3.6	6.1	3.55	3.6
25	1.85	2.24	3.5	2.95	3.1	2.85	3.8	5.3	4.5	3.8
26	1.86	2.22	3.65	3.05	3.05	2.85	3.95	5.35	3.45	3.6
27	1.83	2.11	....	3.00	3.0	3.05	4.25	4.55	3.3	3.2
28	1.77	2.02	2.9	3.0	3.0	3.25	5.0	4.1	3.95	3.0
29	1.81	1.95	2.7	2.95	3.0	....	5.8	4.15	3.55	3.0
30	1.97	1.91	....	3.0	2.65	....	6.4	4.5	4.55	3.95
31	1.88	....	2.8	2.95	....	6.3	....	4.75	....

NOTE.—Stage-discharge relation affected by ice, December 14 to April 2, inclusive, and by logs on control, June 12 to 30.

Daily discharge, in second-feet, of HUDSON RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....			82	353	203	1,700	280	280	290	1,300	2,430	1,500
2.....			73	422	229	1,640	280	280	220	2,600	2,720	1,810
3.....			76	388	252	1,340	280	280	220	4,230	3,410	2,020
4.....			68	295	290	1,020	280	290	200	4,570	2,560	2,030
5.....			63	216	305	890	280	280	200	4,400	1,400	2,420
6.....			63	191	305	1,200	340	260	200	3,740	2,310	2,240
7.....			66	175	290	1,290	380	240	190	3,000	1,580	2,610
8.....			66	167	280	1,200	380	220	180	2,280	1,800	2,370
9.....			66	164	276	1,020	340	220	180	1,750	1,690	2,520
10.....			61	231	295	1,060	320	240	180	1,340	1,680	2,320
11.....			56	167	763	1,020	300	240	190	1,290	1,900	4,150
12.....			56	128	932	932	300	220	240	1,060	1,130	11,400
13.....			59	112	562	772	280	200	260	975	940	7,900
14.....			68	115	457	750	280	200	290	850	1,660	4,080
15.....			112	125	810	750	360	220	280	772	1,320	3,080
16.....			160	139	630	750	440	220	290	735	1,880	4,230
17.....			139	149	506	700	490	200	260	665	1,660	3,930
18.....			146	149	383	600	440	200	280	850	1,300	2,210
19.....			149	157	320	500	440	190	260	1,390	1,870	1,520
20.....			146	268	266	480	400	200	240	3,280	1,650	1,420
21.....			128	457	342	550	380	220	240	5,140	1,850	1,320
22.....			118	630	357	500	380	220	230	5,910	1,570	1,670
23.....			179	562	325	550	360	220	260	6,290	2,480	1,420
24.....			229	464	735	500	340	240	320	4,870	1,650	1,280
25.....			191	377	1,340	490	320	230	420	3,720	2,760	1,460
26.....			195	367	1,490	500	300	260	550	3,900	1,490	1,280
27.....			183	310	1,420	480	280	280	750	2,720	1,170	950
28.....			160	266	810	480	280	280	1,400	2,160	1,900	800
29.....			175	234	665	440	240	.....	1,700	2,300	1,430	800
30.....			242	216	1,170	460	240	.....	1,600	2,740	2,640	1,620
31.....		88	.....	203	.....	340	230	.....	1,500	.....	3,030	.....
Mean.....			119	265	597	802	331	236	437	2,690	1,900	2,610

NOTE.— Discharge, December 14 to April 2, estimated, because of ice, from discharge measurements, weather records and study of gage height graph. Discharge, June 12 to 30, from special rating, because of log jam on control.

Monthly discharge of HUDSON RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

[Drainage area, 418 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
September.....	242	56	119	0.285	0.32
October.....	630	112	235	0.634	0.73
November.....	1,490	203	537	1.36	1.52
December.....	1,700	340	802	1.92	2.21
January.....	460	230	331	0.792	0.91
February.....	280	190	236	0.535	0.59
March.....	1,700	180	437	1.05	1.21
April.....	6,290	695	2,690	6.45	7.20
May.....	3,410	940	1,900	4.55	5.25
June.....	11,400	800	2,610	6.22	6.94

HUDSON RIVER AT NORTH CREEK

Location.—At the two-span steel highway bridge in the village of North Creek, Warren county, immediately above the mouth of North creek.

Drainage area.—804 square miles.

Records available.—September 21, 1907, to June 30, 1917.

Gage.—Chain, at upstream side of left span of the bridge; datum unchanged. William Alexander, observer.

Discharge measurements.—Made from the upstream side of the highway bridge.

Channel and control.—Heavy gravel; fairly permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 10.6 feet at noon, June 12; discharge, approximately 21,000 second-feet. Minimum stage recorded, 2.2 feet at 7 A. M., September 19; discharge, 275 second-feet.

1907–1917: Maximum stage recorded, 12.0 feet during the evening of March 27, 1913; discharge, 30,000 second-feet. Minimum stage, 2.05 feet at 7:05 A. M., September 30, 1913; discharge, 168 second-feet.

Ice.—Stage-discharge relation affected by ice.

Regulation.—The numerous lakes and ponds in the basin of the upper Hudson have a decided effect on the low-water flow; especially the reservoir at Indian lake. Many of the reservoirs are used to make flood waves in the spring in connection with log-driving.

Accuracy.—Stage-discharge relation practically permanent; affected by ice from December to March, inclusive. Rating curve well defined between 250 and 6,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good during open-water period; fairly good during period when stage-discharge relation is affected by ice.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of HUDSON RIVER AT NORTH CREEK, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 2.....	O. W. Hartwell.....	3.04	921
Jan. 6 a.....	E. D. Burchard.....	3.40	572
Jan. 28 b.....	A. H. Davison.....	4.50	678
Feb. 21 c.....	E. D. Burchard.....	4.56	860
Mar. 16 c.....	A. H. Davison.....	4.60	785
April 13.....	E. D. Burchard.....	3.70	1,710
June 20.....	O. W. Hartwell.....	4.50	3,020
June 23.....	O. W. Hartwell.....	3.74	1,720

a Measurement made by wading. b Measurement made through partial ice cover. c Measurement made through complete ice cover.

Daily gage height, in feet, of HUDSON RIVER AT NORTH CREEK, for the year ended June 30, 1917. William Alexander, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.0	2.9	3.05	2.8	2.9	4.4	3.0	4.4	4.6	4.4	4.4	6.1
2.....	2.9	2.8	3.1	2.9	2.9	4.3	3.0	4.6	4.6	5.7	5.1	3.4
3.....	2.9	2.75	3.0	3.05	2.9	4.0	3.2	4.6	4.6	6.4	4.8	4.4
4.....	3.0	2.75	3.0	3.15	3.0	3.65	3.5	4.7	4.6	6.4	5.4	4.3
5.....	3.0	2.9	3.0	3.05	3.05	3.5	3.4	4.6	4.6	6.2	4.5	4.3
6.....	2.95	3.0	3.0	3.0	3.0	3.85	3.25	4.7	4.6	6.0	4.8	4.4
7.....	3.0	3.0	3.0	3.0	2.9	3.9	3.3	4.6	4.6	5.4	4.4	4.3
8.....	2.85	3.0	3.0	3.0	2.8	3.8	3.3	4.6	4.6	4.8	4.4	4.2
9.....	2.8	3.1	3.0	3.0	2.8	3.6	3.3	4.6	4.6	4.4	3.7	4.5
10.....	2.7	3.0	2.95	3.0	2.8	3.6	3.4	4.6	4.6	4.2	4.5	4.1
11.....	2.7	3.0	2.95	2.95	3.2	3.65	3.4	4.6	4.6	3.65	3.45	4.9
12.....	2.6	3.0	2.95	2.9	3.45	3.55	3.55	4.4	4.6	3.8	3.4	9.4
13.....	3.9	3.0	2.95	3.15	3.25	3.4	3.5	4.4	4.6	3.7	4.4	8.6
14.....	3.35	3.0	2.95	2.9	3.0	3.2	3.6	4.4	4.4	3.5	4.2	7.1
15.....	3.4	2.9	3.1	2.75	3.4	2.9	3.55	4.5	4.6	3.4	5.0	6.2
16.....	3.4	2.9	3.1	2.40	3.3	2.8	4.3	4.5	4.6	3.25	4.8	6.2
17.....	3.3	2.9	3.05	2.40	3.2	2.75	4.4	4.4	4.6	3.25	3.25	0.3
18.....	3.0	2.7	2.48	2.40	2.95	2.7	4.3	4.4	4.5	3.8	3.2	5.7
19.....	2.8	3.0	2.42	2.8	2.65	2.8	4.3	4.4	4.5	3.3	3.15	5.3
20.....	2.8	3.0	3.05	2.9	2.48	3.0	4.3	4.5	4.6	5.8	4.9	4.6
21.....	2.6	3.0	3.05	3.0	2.42	3.0	4.4	4.5	4.6	7.2	3.3	4.7
22.....	2.9	3.1	3.1	3.1	2.48	3.0	4.4	4.5	4.6	7.6	4.1	4.6
23.....	2.9	3.2	3.45	3.0	2.8	2.9	4.5	4.4	4.5	7.1	4.2	4.3
24.....	3.0	3.2	3.40	2.9	3.9	3.0	4.5	4.4	4.7	6.5	4.7	4.1
25.....	2.95	3.2	3.20	2.7	4.4	3.0	4.5	4.4	4.7	5.5	3.65	3.85
26.....	2.85	3.1	3.1	2.7	4.0	2.9	4.4	4.4	5.2	5.7	5.2	4.6
27.....	2.7	3.1	2.7	2.6	3.65	3.05	4.4	4.5	5.3	4.5	3.9	3.75
28.....	2.7	3.1	2.6	2.5	3.6	3.05	4.5	4.6	5.2	4.3	3.75	3.85
29.....	2.65	3.0	2.6	2.7	3.6	3.0	4.4	....	5.2	5.5	3.65	3.35
30.....	2.8	2.9	2.7	2.85	3.85	3.0	4.4	....	4.7	5.3	5.2	3.95
31.....	2.9	3.0	....	2.8	....	3.0	4.4	....	4.5	....	5.6	....

NOTE.—Stage-discharge relation affected by ice, December 16 to March 27, inclusive.

Daily discharge, in second-feet, of HUDSON RIVER AT NORTH CREEK, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	890	790	940	700	790	2,870	320	750	900	2,870	2,870	6,600
2.....	790	700	990	790	790	2,700	300	900	950	5,600	4,220	1,350
3.....	790	655	890	940	790	2,210	420	1,000	900	7,400	3,610	2,870
4.....	890	655	890	1,010	890	1,690	670	1,000	900	7,400	4,890	2,700
5.....	890	790	890	940	940	1,480	550	1,000	900	6,860	3,050	2,700
6.....	840	890	890	890	890	1,980	460	1,000	800	6,340	3,610	2,870
7.....	890	890	890	890	790	2,060	490	950	800	4,890	2,870	2,700
8.....	745	890	890	890	700	1,910	480	950	800	3,810	2,870	2,530
9.....	700	990	890	890	700	1,620	500	950	800	2,870	1,760	3,050
10.....	610	890	840	890	700	1,620	550	900	750	2,530	3,050	2,370
11.....	610	890	840	840	1,100	1,690	500	900	800	1,690	1,420	3,810
12.....	530	890	840	790	1,420	1,550	550	800	750	1,910	1,350	16,900
13.....	790	890	840	1,040	1,160	1,350	460	750	750	1,760	2,870	14,100
14.....	1,280	890	840	790	890	1,100	500	750	750	1,490	2,530	9,400
15.....	1,350	790	990	655	1,350	790	420	850	750	1,350	4,010	6,860
16.....	1,350	790	990	390	1,220	550	1,000	850	800	1,160	3,610	6,860
17.....	1,220	790	940	390	1,100	420	1,000	750	750	1,160	1,160	7,130
18.....	890	610	446	390	840	420	950	750	700	1,910	1,100	5,600
19.....	700	890	404	700	570	500	900	800	700	1,220	1,040	4,660
20.....	700	890	940	790	446	650	850	850	750	5,840	3,810	3,230
21.....	530	890	940	890	404	650	850	850	750	9,700	1,220	3,420
22.....	790	990	990	990	446	650	850	850	850	10,900	2,370	3,230
23.....	790	1,100	1,420	890	700	600	900	750	900	9,400	2,530	2,700
24.....	890	1,100	1,350	790	2,060	550	850	700	1,000	7,680	3,420	2,370
25.....	840	1,100	1,100	610	2,870	550	800	750	1,300	5,120	1,690	1,980
26.....	745	990	990	610	2,210	480	700	700	1,800	5,600	4,440	3,230
27.....	610	990	610	530	1,690	440	650	800	2,600	3,050	2,060	1,840
28.....	610	990	530	460	1,620	420	650	850	4,440	2,700	1,840	1,980
29.....	570	890	530	610	1,620	380	650	.....	4,440	5,120	1,690	1,280
30.....	700	790	610	745	1,980	340	700	.....	3,420	4,660	4,440	2,140
31.....	790	890	.....	700	.....	320	700	.....	3,050	.....	5,360	.....
Mean...	917	877	871	757	1,120	1,110	650	846	1,310	4,460	2,800	4,420

NOTE.— Discharge, December 16 to March 27, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of HUDSON RIVER AT NORTH CREEK, for the year ended June 30, 1917
[Drainage area, 804 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,350	530	817	1.02	1.18
August.....	1,100	610	877	1.09	1.26
September.....	1,420	404	871	1.08	1.20
October.....	1,040	460	757	0.942	1.09
November.....	2,870	404	1,120	1.39	1.55
December.....	2,870	320	1,110	1.38	1.59
January.....	1,000	300	650	0.808	0.93
February.....	1,000	700	846	1.05	1.09
March.....	4,440	700	1,310	1.63	1.88
April.....	10,900	1,160	4,460	5.55	6.19
May.....	5,360	1,040	2,800	3.48	4.01
June.....	16,900	1,280	4,420	5.50	6.14
The year.....	16,900	300	1,670	2.08	28.11

NOTE.— Figures in the above table are not corrected for storage in Indian lake and other reservoirs in the drainage basin.

HUDSON RIVER AT THURMAN

Location.— At the Delaware and Hudson Railroad bridge near the Thurman railroad station, Warren county, about $\frac{1}{2}$ mile below the mouth of Schroon river and about 13 miles above the mouth of Sacandaga river.

Drainage area.— 1,550 square miles.

Records available.— September 1, 1907, to June 30, 1917.

Gage.— Chain, at upstream side of center of left bridge span; datum unchanged. S. H. Spencer, observer.

Discharge measurements.— Made from the upstream side of the bridge.

Channel and control.— Sand and gravel; fairly permanent.

Extremes of discharge.— Current year: Maximum stage recorded, 9.45 feet at about 4 P. M., June 12; discharge, 24,800 second-feet. Minimum stage recorded, 2.08 feet at about 7 A. M., November 22; discharge, approximately 480 second-feet.

1907–1917: Maximum stage, 12.5 feet during the late evening of March 27, 1913, determined by leveling from flood-marks; approximate discharge, 46,000 second-feet. Minimum stage recorded, 2:12 feet at 8:55 A. M. and 6:20 P. M., September 30, 1913; discharge, 290 second-feet.

Ice.— Stage-discharge relation seriously affected by ice. Discharge estimated from records at North Creek and Riverbank.

Regulation.— Discharge is regulated to some extent by the storage reservoirs at Indian lake and Schroon lake and the mills at the Schroon river.

Accuracy.— Stage-discharge relation practically permanent; affected by ice during large part of the period from December to March, inclusive. Rating curve well defined between 550 and 20,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good. Estimated results during frozen period fairly good.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission. Gage heights furnished by the International Paper Company.

Discharge measurements of HUDSON RIVER AT THURMAN, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 10.....	A. H. Davison.....	3.60	1,340
April 11.....	W. A. James.....	4.76	5,130
April 11.....	E. D. Burchard.....	4.72	5,190
May 8.....	E. D. Burchard.....	4.74	5,370
June 16.....	E. D. Burchard.....	6.25	10,900
June 16.....	E. D. Burchard.....	6.22	11,100

Daily gage height, in feet, of HUDSON RIVER AT THURMAN, for the year ended June
30, 1917. S. H. Spencer, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.3	2.75	2.8	2.55	2.6	4.1	4.6	4.8	5.0	5.9	4.6	5.5
2.....	3.05	2.75	2.8	2.65	2.6	4.1	4.7	4.8	5.1	6.4	5.5	4.2
3.....	2.25	2.65	2.75	2.8	2.7	3.85	4.6	5.0	5.0	6.6	5.1	4.4
4.....	2.35	2.7	2.85	3.0	2.8	3.65	4.8	.....	5.9	6.7	4.2	4.35
5.....	2.4	2.6	2.9	2.8	2.7	3.5	4.9	.....	5.9	6.6	4.4	4.3
6.....	3.25	2.9	2.85	2.8	2.75	3.7	4.7	5.0	5.0	6.4	4.7	4.5
7.....	3.2	2.9	2.85	2.75	2.75	3.7	4.7	5.0	5.0	6.1	4.1	4.6
8.....	3.05	2.9	2.75	2.7	2.65	3.7	4.4	5.0	5.0	5.8	4.5	4.2
9.....	2.9	3.05	2.75	2.75	2.55	3.6	4.5	4.9	5.0	5.4	4.2	4.4
10.....	3.1	2.9	2.75	2.7	2.6	3.6	4.6	4.8	5.0	5.0	5.1	4.2
11.....	2.95	2.95	2.8	2.75	2.6	3.55	4.5	4.8	5.0	4.8	4.7	4.4
12.....	2.9	2.9	2.7	2.65	3.05	3.5	4.3	4.8	5.0	4.7	4.5	9.0
13.....	2.9	2.9	2.8	2.9	3.05	3.45	4.5	4.8	4.9	4.5	3.65	8.4
14.....	3.5	2.9	2.7	2.65	2.8	3.2	4.8	4.9	.....	4.3	4.0	7.0
15.....	3.45	2.85	2.95	2.5	2.85	3.2	5.2	5.0	5.0	4.2	3.5	6.3
16.....	3.3	2.8	2.95	2.45	3.05	2.95	5.4	5.1	4.9	4.1	4.3	6.3
17.....	3.25	2.8	2.85	2.3	2.9	2.85	5.6	5.0	4.9	4.0	3.65	6.3
18.....	2.65	2.65	2.7	2.25	2.8	3.2	5.4	5.0	4.8	4.1	4.6	5.5
19.....	2.8	2.8	2.3	2.4	2.55	3.75	5.4	5.0	4.8	4.4	2.4	5.1
20.....	2.75	2.9	2.7	2.85	2.45	4.0	5.2	5.0	4.8	5.4	3.8	4.9
21.....	2.65	2.85	2.75	2.8	2.25	3.85	5.2	5.0	4.7	6.6	3.25	4.8
22.....	2.6	2.95	2.75	3.0	2.15	3.9	5.2	4.9	4.7	7.1	4.9	4.5
23.....	2.7	3.05	3.05	2.9	2.35	4.1	5.1	.....	4.6	7.0	3.3	4.5
24.....	2.95	3.0	3.3	2.7	3.4	4.1	5.1	4.8	4.7	6.6	5.0	4.5
25.....	3.2	3.0	3.05	2.6	2.95	3.95	5.1	4.8	5.3	6.1	3.7	4.0
26.....	2.9	2.8	2.9	2.45	3.7	4.2	5.0	4.9	5.4	6.0	5.6	3.85
27.....	2.7	2.9	2.85	2.45	4.3	4.4	4.9	4.8	5.8	5.3	3.9	3.75
28.....	2.75	3.0	2.45	2.4	3.4	4.4	5.0	5.0	7.2	4.8	3.85	3.6
29.....	2.6	2.9	2.45	2.3	3.2	4.2	4.8	.....	6.9	5.0	4.2	3.6
30.....	2.55	2.7	2.5	2.6	3.5	4.3	5.0	.....	6.8	4.5	4.5	4.0
31.....	2.9	2.75	.....	2.7	.....	4.5	4.9	.....	6.1	.....	4.5	.....

NOTE.—Stage-discharge relation affected by ice, December 18 to March 31.

GAGING OF STREAMS: HUDSON RIVER BASIN 257

Daily discharge, in second-feet, of HUDSON RIVER AT THURMAN, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,940	1,020	1,080	805	850	3,880	.....	.....	.....	9,500	5,290	8,100
2.....	1,460	1,020	1,080	905	850	3,880	.....	.....	.....	11,400	8,100	4,140
3.....	1,840	905	1,020	1,080	960	3,200	.....	.....	.....	12,100	6,780	4,710
4.....	2,040	960	1,150	1,380	1,080	2,720	.....	.....	.....	12,500	4,140	4,560
5.....	2,150	850	1,220	1,080	960	2,370	.....	.....	.....	12,100	4,710	4,420
6.....	1,840	1,220	1,150	1,080	1,020	2,840	.....	.....	.....	11,400	5,580	5,000
7.....	1,740	1,220	1,150	1,020	1,020	2,840	.....	.....	.....	10,200	3,880	5,290
8.....	1,460	1,220	1,020	960	905	2,840	.....	.....	.....	9,140	5,000	4,140
9.....	1,220	1,460	1,020	1,020	805	2,600	.....	.....	.....	7,760	4,140	4,710
10.....	1,550	1,220	1,020	960	850	2,600	.....	.....	.....	6,470	6,780	4,140
11.....	1,300	1,300	1,080	1,020	850	2,480	.....	.....	.....	5,870	5,580	4,710
12.....	1,220	1,220	960	905	1,460	2,370	.....	.....	.....	5,580	5,000	22,600
13.....	1,220	1,220	1,080	1,220	1,460	2,280	.....	.....	.....	5,000	2,720	19,800
14.....	2,370	1,220	960	905	1,080	1,740	.....	.....	.....	4,420	3,590	13,700
15.....	2,280	1,150	1,300	780	1,150	1,740	.....	.....	.....	4,140	2,370	11,000
16.....	1,940	1,080	1,300	720	1,460	1,300	.....	.....	.....	3,860	4,420	11,000
17.....	1,840	1,080	1,150	610	1,220	1,150	.....	.....	.....	3,590	2,720	11,000
18.....	1,300	905	960	578	1,080	.....	.....	.....	.....	3,860	5,290	8,100
19.....	1,080	1,080	610	680	805	.....	.....	.....	.....	4,710	2,150	6,780
20.....	1,020	1,220	960	1,150	720	.....	.....	.....	.....	7,760	3,080	6,170
21.....	905	1,150	1,020	1,080	578	.....	.....	.....	.....	12,100	1,840	5,870
22.....	850	1,300	1,020	1,380	515	.....	.....	.....	.....	14,100	6,170	5,000
23.....	960	1,460	1,460	1,220	645	.....	.....	.....	.....	13,700	1,940	5,000
24.....	1,300	1,380	1,940	960	2,150	.....	.....	.....	.....	11,700	6,470	5,000
25.....	1,740	1,380	1,460	850	3,460	.....	.....	.....	.....	10,200	2,840	3,590
26.....	1,220	1,080	1,220	720	2,840	.....	.....	.....	.....	9,860	8,440	3,200
27.....	960	1,220	1,150	720	4,420	.....	.....	.....	.....	7,430	3,330	2,960
28.....	1,020	1,380	720	680	2,150	.....	.....	.....	.....	5,870	3,200	2,600
29.....	850	1,220	720	610	1,740	.....	.....	.....	.....	6,470	4,140	2,600
30.....	805	960	760	850	2,370	.....	.....	.....	.....	5,000	5,000	3,590
31.....	1,220	1,020	.....	960	.....	.....	.....	.....	.....	.....	5,000	.....
Mean...	1,440	1,170	1,090	931	1,380	1,990	1,180	1,240	1,900	8,260	4,510	6,780

NOTE.—Mean discharge December 18 to 31, computed, 1,350 second-feet, from some of the flow at North Creek and Riverbank, plus an estimated inflow below these stations. Mean discharge for January, February and March estimated in a similar manner.

Monthly discharge of HUDSON RIVER AT THURMAN, for the year ended June 30, 1917
[Drainage area, 1,550 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	2,370	805	1,440	0.929	1.07
August.....	1,460	850	1,170	0.755	0.87
September.....	1,940	610	1,090	0.703	0.78
October.....	1,380	578	931	0.601	0.69
November.....	4,420	515	1,380	0.890	0.99
December.....	3,860	.....	1,990	1.28	1.43
January.....	.....	.....	1,180	0.761	0.88
February.....	.....	.....	1,240	0.800	0.83
March.....	.....	.....	1,900	1.23	1.42
April.....	14,100	3,590	8,260	5.32	5.94
May.....	8,440	1,840	4,510	2.91	3.34
June.....	22,600	2,600	6,780	4.37	4.88
The year.....	22,600	515	2,650	1.71	23.12

NOTE.—The figures in the above table do not represent the natural flow from the basin, because of artificial storage. The yearly run-off doubtless represents nearly natural flow.

HUDSON RIVER AT CORINTH

This station was established October 1, 1906, and is maintained in coöperation with the United States Weather Bureau. It is located at the mouth of Sturdevant creek on the right bank of the Hudson river about $\frac{1}{4}$ mile upstream from the highway bridge across the Hudson river in the village of Corinth.

On June 26, 1917, a standard Type A gage, No. 129, was secured to the left abutment of an abandoned highway bridge at the mouth of the creek, replacing the gage secured to the right abutment of the same bridge. The gage has a range of 14 feet and the datum is arbitrary.

It is read twice daily—at about 8 A. M. and 5 P. M.—to tenths.

Daily gage height, in feet, of HUDSON RIVER AT CORINTH, for the year ended June 30, 1917. E. H. Bowker, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2.6	1.9	1.65	2.0	1.6	3.25	2.15	2.25	2.55	4.8	3.5	4.1
2.....	2.6	1.65	1.45	2.1	1.7	3.55	2.2	2.1	2.6	5.3	3.5	3.45
3.....	2.6	1.6	1.4	2.2	2.1	3.3	2.1	2.1	2.55	6.1	3.6	3.2
4.....	2.9	1.5	1.55	2.1	2.1	3.05	2.05	2.1	2.5	6.3	3.6	3.2
5.....	2.9	1.4	1.75	2.0	2.1	2.7	2.2	2.1	2.45	6.15	3.5	3.35
6.....	2.6	1.5	1.8	2.0	2.1	2.6	2.2	2.1	2.25	6.0	3.45	3.55
7.....	2.2	1.5	2.0	1.9	2.1	2.75	2.35	2.1	2.2	5.6	3.2	3.35
8.....	1.9	1.5	2.0	2.0	2.1	2.65	2.5	2.1	2.2	5.25	3.35	3.05
9.....	2.0	1.6	2.0	2.0	2.1	2.45	2.5	2.2	2.2	4.8	3.4	3.25
10.....	2.0	1.7	1.9	1.85	2.1	2.4	2.4	2.2	2.05	4.3	3.4	3.65
11.....	1.9	1.7	1.8	1.75	2.1	2.4	2.35	2.2	2.15	3.8	3.3	4.25
12.....	1.8	1.8	1.8	1.65	2.1	2.45	2.1	2.2	2.35	3.55	3.3	6.25
13.....	2.3	2.0	1.8	1.6	2.1	2.6	1.85	2.2	2.4	3.4	3.05	7.15
14.....	2.9	1.95	1.8	1.7	1.95	2.5	2.2	2.2	2.35	3.1	2.85	6.55
15.....	2.55	1.8	1.9	1.7	1.9	2.5	2.7	2.2	2.45	2.9	2.3	5.8
16.....	2.2	1.8	2.1	1.6	1.9	2.4	2.8	2.15	2.5	2.65	2.05	5.4
17.....	1.95	1.65	2.3	1.6	1.9	2.3	2.8	1.95	2.6	2.6	1.95	5.2
18.....	1.75	1.55	2.4	1.6	1.9	2.2	2.8	2.05	2.5	2.6	1.85	4.2
19.....	1.55	1.45	2.4	1.75	1.8	2.05	2.8	2.2	2.4	3.05	1.8	3.7
20.....	1.5	1.4	2.3	2.1	1.7	2.0	2.65	2.2	2.4	4.1	1.75	3.25
21.....	1.5	1.4	2.3	2.35	1.8	2.0	2.6	2.2	2.35	5.5	1.55	2.95
22.....	2.3	2.3	2.15	2.3	1.95	2.25	2.6	2.3	2.3	5.95	1.9	2.7
23.....	2.9	2.15	2.1	2.2	2.15	2.5	2.5	2.2	2.35	6.4	2.4	2.45
24.....	2.7	1.7	2.1	2.05	3.1	2.5	2.5	2.2	2.9	6.15	3.4	2.4
25.....	2.3	1.6	2.0	2.0	3.7	2.5	2.25	2.1	3.3	5.55	3.4	2.25
26.....	2.15	1.5	1.9	2.0	4.0	2.35	2.2	2.0	3.85	5.1	4.0	2.15
27.....	2.05	1.6	1.8	1.9	4.0	2.4	2.2	2.3	3.65	4.55	3.3	2.0
28.....	1.95	1.8	1.8	1.8	3.45	2.4	2.3	2.4	4.4	4.1	2.55	2.0
29.....	2.1	1.9	1.95	1.95	2.95	2.1	2.3	....	4.85	3.85	3.0	2.75
30.....	2.25	1.8	2.0	1.85	2.75	2.0	2.3	....	5.0	3.6	3.6	3.8
31.....	2.3	1.8	....	1.65	....	2.0	2.4	....	4.85	....	3.8	....

HUDSON RIVER AT SPIER FALLS

Location.—One-half mile below the Spier Falls dam, Saratoga county, and $11\frac{1}{2}$ miles below the mouth of Sacandaga river.

Drainage area.—2,800 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—October 7, 1912, to June 30, 1917.

Gage.—Gurley 2-day water-stage recorder located in a brick shelter five feet square on the right bank about $\frac{1}{2}$ mile below the Spier Falls dam. Recorder inspected by H. T. Wakely and T. F. Malone, chief operators of power-plant.

Discharge measurements.—Made from a cable about 1,000 feet downstream from the gage.

Channel and control.—Coarse gravel and boulders; probably permanent.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 12.82 feet at 8:30 p. m., June 12; discharge, 38,100 second-feet. Minimum stage from water-stage recorder, 0.17 foot from 11 a. m. to 2 p. m., September 10; discharge, 16 second-feet.

1912-1917: Maximum stage from water-stage recorder, 18.59 feet at 12:25 a. m., March 28, 1913; discharge, 89,100 second-feet. Minimum stage recorded during discharge measurement, September 15, 1912, gage height, 0.06 foot; discharge, 5.7 second-feet, power-plant being shut down at this time and the flow of the river being stored in its pond.

Ice.—Stage-discharge relation not affected by ice except for a short time during extremely cold periods.

Regulation.—Large diurnal fluctuation in discharge, due to the operation of the Spier Falls power-plant. Seasonal flow affected by storage at Indian lake and many small lakes and reservoirs in the upper part of the drainage.

Accuracy.—Stage-discharge relation practically permanent; probably not affected by ice this year. Rating curve well defined for all stages except about nine feet, where the rating may be 4 or 5 per cent large. Operation of the water-stage recorder satisfactory throughout the year. Daily discharge ascertained by averaging the results obtained by applying gage heights for one-hour intervals to rating table. Results good.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission. Water-stage recorder inspected by an employee of the Adirondack Electric Power Corporation.

Discharge measurements of HUDSON RIVER AT SPIER FALLS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
Aug. 11.....	A. H. Davison.....	3.47	2,670
Sept. 3.....	A. H. Davison.....	2.52	1,190
Feb. 24 a.....	E. D. Burchard.....	2.80	1,580
April 10.....	E. D. Burchard.....	7.77	14,200

a Measurement made through partial ice cover.

Daily discharge, in second-feet, of HUDSON RIVER AT SPIER FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3,450	1,760	1,470	513	1,400	9,310	1,430	2,350	2,790	18,000	12,000	12,100
2.....	2,570	1,680	1,540	1,470	1,450	9,840	1,700	2,290	3,070	22,800	13,200	7,830
3.....	3,680	1,490	1,280	1,140	1,430	8,890	1,990	1,920	2,800	27,800	13,400	7,670
4.....	4,520	1,510	1,180	1,540	1,740	7,540	1,820	2,030	2,020	29,400	13,600	7,600
5.....	4,690	1,090	1,510	2,120	1,320	6,530	2,550	2,280	3,280	28,600	11,900	7,280
6.....	3,820	493	1,630	1,590	1,950	6,490	2,670	2,140	2,290	26,200	11,600	8,450
7.....	3,360	1,850	1,340	1,110	1,680	7,100	1,330	2,030	2,450	23,500	11,000	7,450
8.....	2,950	1,780	1,280	874	1,530	6,720	2,950	1,740	2,490	20,400	10,900	7,210
9.....	2,290	1,640	1,170	1,550	1,910	6,020	2,640	2,130	2,290	17,600	9,930	8,300
10.....	2,940	1,580	907	1,320	1,690	6,170	2,600	2,030	2,390	15,100	9,820	8,250
11.....	2,610	1,590	1,930	1,040	2,140	6,350	2,660	1,290	1,330	12,900	8,770	9,800
12.....	2,340	1,690	1,550	958	1,480	5,700	2,520	1,970	2,290	11,600	8,360	31,900
13.....	2,100	1,050	1,310	1,440	2,930	5,050	2,190	2,000	2,300	10,600	7,480	36,000
14.....	2,550	1,830	1,340	1,620	1,830	4,230	1,440	1,480	2,430	9,580	6,680	30,400
15.....	3,300	1,510	1,580	1,080	1,920	3,090	3,450	1,660	2,550	8,860	5,530	24,400
16.....	2,770	1,430	2,050	959	2,040	3,180	3,620	1,950	2,840	8,230	6,620	21,500
17.....	3,200	1,420	1,140	1,190	2,160	1,380	4,020	1,850	2,430	7,610	5,180	20,300
18.....	2,810	1,590	1,580	810	1,550	2,430	4,050	2,000	1,660	7,940	5,520	15,200
19.....	2,030	1,080	1,420	991	1,190	2,360	4,030	2,090	3,970	9,570	4,200	12,900
20.....	1,880	192	1,230	1,600	1,900	2,440	3,490	1,970	2,600	14,600	6,380	10,400
21.....	1,900	1,340	1,180	2,570	1,220	2,380	2,820	1,950	2,730	22,700	4,750	9,320
22.....	1,280	1,430	1,400	2,520	1,150	2,700	3,550	1,730	2,830	23,000	4,850	8,220
23.....	1,330	1,070	1,640	3,370	948	2,970	2,620	2,080	3,060	28,300	4,000	7,630
24.....	2,630	1,590	1,780	2,750	2,510	1,300	2,410	1,630	2,890	26,700	7,250	5,810
25.....	2,120	1,730	3,250	2,170	6,450	2,040	2,530	1,460	5,340	23,100	6,090	6,070
26.....	1,840	1,450	1,900	1,540	6,690	2,540	2,440	2,420	8,300	20,000	9,480	6,070
27.....	2,020	637	1,840	1,600	5,370	1,890	1,870	1,940	12,200	17,600	6,140	4,940
28.....	1,760	1,810	1,430	1,520	5,500	1,850	1,510	2,320	18,100	16,100	5,200	4,310
29.....	1,410	1,530	1,350	1,020	5,140	2,390	2,040	.....	18,400	13,800	6,290	4,630
30.....	1,470	1,470	1,440	1,570	5,770	2,530	1,800	.....	19,000	12,600	9,390	7,670
31.....	1,500	1,390	.....	1,670	.....	1,400	2,140	.....	18,400	.....	11,100	.....
Mean...	2,550	1,430	1,520	1,520	2,530	4,350	2,540	1,950	5,210	17,900	8,270	12,000

NOTE.— Daily discharge is mean of 24 hourly discharge values.

Monthly discharge of HUDSON RIVER AT SPIER FALLS, for the year ended June 30,
1917

[Drainage area, 2,800 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	4,590	1,280	2,550	0.911	1.05
August.....	1,850	192	1,430	0.511	0.59
September.....	3,250	907	1,520	0.543	0.61
October.....	3,370	513	1,520	0.543	0.63
November.....	5,770	848	2,530	0.904	1.01
December.....	9,840	1,300	4,350	1.55	1.79
January.....	4,050	1,330	2,540	0.907	1.05
February.....	2,420	1,290	1,950	0.697	0.73
March.....	19,000	1,330	5,210	1.86	2.14
April.....	29,400	7,610	17,900	6.40	7.14
May.....	13,600	4,000	8,270	2.95	3.40
June.....	36,000	4,310	12,000	4.27	4.76
The year.....	36,000	192	5,140	1.84	24.90

NOTE.— The figures in the above table do not represent the natural flow from the basin, because of artificial storage. The yearly run-off doubtless represents very nearly natural flow.

HUDSON RIVER AT VARNEY FARM, ABOVE GLENS FALLS

This station, established January 27, 1914, is located on the left bank of the Hudson river about 3 miles upstream from the feeder dam at Glens Falls. The gage, originally a vertical staff attached to a pine tree about 800 feet north of the fence running toward the river from the barn on the Varney farm, was replaced in November, 1916, by a standard Type A gage, having a range of 12 feet, between elevations 281.0 and 293.0. A nail was driven in the tree at elevation 290.0 (B. C. datum) for a reference point.

The gage is read twice daily — morning and afternoon — to tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER AT VARNEY FARM, ABOVE GLENS FALLS, for the year ended June 30, 1917. W. D. Barber, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	283.75	282.9	283.4	283.65	282.9	286.1	281.35	282.75	281.8	287.3	289.3	289.2
2.....	283.75	282.85	283.45	283.55	282.8	286.75	280.85	280.95	282.25	288.2	286.5	285.1
3.....	282.9	281.15	282.75	283.25	282.95	289.3	281.6	280.2	282.2	289.4	283.75	284.85
4.....	282.35	281.15	283.15	283.3	282.4	286.05	281.7	280.55	279.9	289.75	286.65	284.8
5.....	282.35	281.55	283.45	283.55	284.25	285.9	281.85	282.7	282.25	289.95	286.75	284.65
6.....	282.55	280.45	282.85	283.65	284.4	286.2	283.25	282.55	281.8	289.45	286.25	285.3
7.....	282.55	280.05	282.6	283.85	284.65	283.35	280.15	282.6	281.8	288.85	286.15	284.7
8.....	282.95	281.6	282.4	283.45	283.95	286.3	281.4	282.35	283.1	288.15	283.0	284.65
9.....	281.9	282.3	282.35	283.45	283.9	286.1	282.55	282.45	282.8	287.5	285.85	284.85
10.....	281.85	282.75	282.5	283.3	283.25	284.85	282.75	282.55	282.8	286.85	285.85	284.95
11.....	281.8	283.05	283.3	283.5	282.9	286.15	282.9	281.1	281.75	286.35	285.5	285.15
12.....	282.45	283.2	283.4	283.5	283.25	286.0	282.1	281.2	282.2	286.05	285.2	290.1
13.....	282.75	282.7	283.65	283.6	286.65	284.55	282.3	281.5	281.45	285.75	285.2	291.9
14.....	283.8	283.65	283.3	283.75	285.2	282.6	281.75	281.7	281.85	285.55	284.6	291.5
15.....	284.1	284.4	282.75	283.65	283.9	282.95	284.2	281.05	281.45	285.35	283.9	290.05
16.....	283.3	283.75	282.8	283.15	283.5	283.95	285.25	281.2	282.55	285.15	284.1	288.75
17.....	283.0	283.65	282.8	282.65	284.2	281.75	285.1	281.05	282.35	284.95	283.7	287.95
18.....	283.15	283.3	283.65	282.55	284.1	281.5	285.7	281.05	280.75	284.95	281.6	287.15
19.....	283.2	283.3	282.75	282.85	283.0	281.95	285.65	281.6	282.6	285.45	282.6	281.45
20.....	283.15	280.9	283.1	283.0	283.95	281.85	284.75	281.95	281.95	286.5	283.15	285.65
21.....	283.2	281.25	283.0	284.35	283.1	281.2	283.4	281.8	281.35	288.5	283.0	285.25
22.....	283.05	282.1	282.8	283.0	281.9	282.4	283.95	281.85	282.15	289.4	282.0	285.05
23.....	281.15	282.4	282.7	284.6	282.0	282.95	283.0	281.85	282.15	290.0	283.15	284.9
24.....	281.45	283.2	285.8	283.5	282.4	281.7	283.0	281.95	282.25	289.6	283.8	284.25
25.....	282.0	281.15	283.1	283.7	283.1	281.8	282.65	281.15	283.6	283.4	284.35	a
26.....	282.95	284.6	285.9	282.2	283.2	284.65	282.55	282.75	284.85	288.2	284.6	284.45
27.....	282.75	284.3	284.95	282.35	283.0	282.8	282.0	282.4	285.95	287.7	284.55	281.8
28.....	282.6	281.8	283.9	284.4	286.0	282.0	282.15	282.35	287.45	287.05	284.15	281.05
29.....	282.5	282.5	284.0	282.4	285.85	282.15	282.75	.....	287.55	283.5	284.35	281.05
30.....	281.95	281.05	283.75	282.8	284.15	282.7	282.65	.....	287.66	283.4	285.05	284.3
31.....	281.85	283.2	.....	283.05	.....	281.35	283.1	.....	287.4	.....	285.65	.....

a No record.

HUDSON RIVER AT GLENS FALLS

This station, located above the feeder dam at Glens Falls, was established March 9, 1905, and is maintained in coöperation with the U. S. Weather Bureau. A vertical staff on crib near left bank about 500 feet above dam is read to tenths twice daily — at 8 A. M. and 5 P. M. (January–February, 8 A. M. and 4 P. M.).

In connection with the enlargement of the Glens Falls feeder to supply the summit level of the Champlain branch of the Barge canal system the feeder dam was reconstructed. A new concrete structure with an ogee crest at elevation 282.0 and 615 feet in length, including a logway 20 feet wide at elevation 280.0 with provision for flash-boards to crest, was built immediately below the old timber-crib dam, which had a very irregular crest averaging about elevation 281.0 and being about 618 feet long. There are large bulkheads for power purposes at each end of the dam.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE FEEDER DAM AT GLENS FALLS, for the year ended June 30, 1917. A. B. Fisher, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	283.83	282.38	282.83	282.03	283.58	285.73	280.58	282.68	281.33	286.13	285.43	284.78
2.....	282.38	282.58	283.08	282.88	283.13	286.33	280.03	280.73	282.53	286.58	285.48	284.58
3.....	282.03	282.08	284.08	282.88	282.88	285.93	281.08	279.83	282.13	287.33	285.73	284.28
4.....	*	281.98	284.18	282.98	282.88	285.63	281.53	280.73	279.58	287.53	285.63	284.28
5.....	*	281.88	284.08	284.33	283.83	285.58	281.58	282.13	281.03	287.48	285.58	284.63
6.....	*	280.38	283.43	284.78	284.43	285.98	283.28	282.68	281.48	287.18	285.38	284.43
7.....	283.43	280.93	282.83	284.43	284.73	286.18	279.93	282.83	281.43	286.88	285.48	284.18
8.....	282.63	282.33	282.73	282.73	284.18	286.13	280.88	282.53	282.93	286.48	285.43	284.13
9.....	281.53	282.18	282.48	283.28	283.98	285.93	282.43	282.18	282.68	286.08	285.23	284.33
10.....	281.73	282.38	282.08	283.18	283.48	285.78	282.63	281.88	282.73	285.83	285.23	284.33
11.....	282.08	282.18	283.48	283.78	283.28	286.03	282.93	281.33	281.63	285.43	284.93	284.58
12.....	281.98	282.18	282.98	283.28	283.03	286.03	282.73	280.93	282.03	285.18	284.88	287.43
13.....	281.93	283.48	282.63	283.33	285.33	284.48	282.98	281.58	280.83	285.03	284.73	288.03
14.....	282.38	283.78	282.33	284.63	285.33	282.88	281.38	281.73	281.53	284.98	284.18	287.43
15.....	283.48	283.93	282.98	284.13	284.03	282.63	284.03	281.03	281.38	284.83	284.13	286.78
16.....	283.08	283.63	282.83	283.83	283.53	284.18	285.13	281.88	282.23	284.68	283.48	286.23
17.....	283.68	283.38	283.68	283.23	284.08	281.93	286.48	281.98	281.68	284.53	283.63	286.13
18.....	283.18	282.78	283.53	282.98	283.93	281.23	285.68	281.63	279.88	284.53	283.08	285.48
19.....	282.53	282.58	282.93	282.58	283.13	281.28	285.63	282.18	282.03	284.88	282.63	285.08
20.....	281.63	281.43	282.78	283.03	283.83	281.48	284.83	282.13	281.73	285.53	282.78	284.63
21.....	282.68	281.68	282.73	283.93	283.23	281.78	283.33	281.68	280.88	286.68	282.78	284.53
22.....	282.58	281.93	282.38	282.93	282.38	282.03	284.38	281.38	281.73	287.23	281.93	284.33
23.....	281.33	282.58	282.88	284.58	282.08	282.68	282.38	281.63	281.78	287.53	283.03	284.18
24.....	282.98	283.48	283.28	283.58	282.43	280.68	282.98	281.83	282.03	287.38	284.08	283.73
25.....	283.88	283.93	286.03	283.58	285.73	281.43	282.58	280.28	283.18	286.98	285.03	283.63
26.....	282.53	284.33	284.83	282.38	286.03	284.83	282.63	282.33	284.18	286.43	284.63	283.88
27.....	282.43	284.28	283.68	282.93	285.53	283.53	282.13	282.28	284.88	286.23	284.18	283.63
28.....	282.03	283.78	282.23	283.68	286.13	281.83	282.38	282.18	285.83	285.88	283.93	282.58
29.....	282.38	282.88	281.98	283.28	285.73	281.93	282.83	.....	286.08	285.53	283.88	282.68
30.....	281.88	282.73	282.63	282.58	284.83	282.33	282.78	.....	286.18	285.53	284.83	283.48
31.....	281.98	282.43	.....	283.08	.....	280.83	283.13	.....	286.13	.....	284.88	.....

* Record doubtful, not published.

HUDSON RIVER AT TERMINAL, FORT EDWARD

This station was originally established as "Hudson river at Bridge street, Fort Edward" and so maintained from April 11, 1904, to November 14, 1915, when it was discontinued and a new record begun at the Fort Edward canal terminal, about 550 feet farther upstream. A staff gage on the lower return of the terminal wall was replaced in November, 1916, by a standard Type A gage, No. 119, in two sections, having a range of 16 feet, the lower section, between elevations 119.0 and 127.0, being attached to the lower return of the terminal wall, and the upper section, between elevations 127.0 and 135.0, being attached to a barn a short distance back of the terminal wall. A standard bench-mark plug is set in the wall near the lower section at elevation 126.0 (B. C. datum).

The gage is read twice daily—at 8 A. M. and 5 P. M.—to half-tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER AT TERMINAL,
FORT EDWARD, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	120.62	119.82	119.70	119.55	120.05	121.80	120.35	120.35	120.55	124.50	123.05	122.82
2.....	120.28	119.82	119.65	119.70	119.92	122.35	119.95	120.30	120.50	125.35	123.10	121.90
3.....	121.28	119.80	119.72	119.70	119.98	122.00	119.95	120.18	120.62	126.82	123.35	121.60
4.....	120.52	119.95	119.75	119.75	119.92	121.82	120.18	119.90	120.30	127.25	123.25	121.85
5.....	121.15	119.85	120.10	119.85	119.90	121.40	120.30	120.00	120.35	127.28	123.20	121.68
6.....	120.85	119.62	120.00	120.05	119.95	121.35	120.60	120.15	120.35	126.62	122.70	121.70
7.....	120.65	119.75	120.50	119.95	120.20	121.68	120.35	120.10	120.25	126.05	123.00	121.75
8.....	120.40	119.85	119.90	119.75	120.15	121.52	120.20	120.35	120.05	125.35	122.65	121.82
9.....	120.25	119.75	119.75	119.72	119.90	121.35	120.10	120.05	120.05	124.58	122.45	121.85
10.....	120.32	119.75	119.62	119.78	120.12	121.10	120.42	120.20	120.25	123.82	122.18	121.88
11.....	120.15	119.95	119.65	119.90	120.05	121.45	120.45	119.95	120.10	123.25	122.02	122.20
12.....	120.22	119.80	120.00	119.85	119.85	121.20	120.50	119.85	120.10	122.90	121.80	127.35
13.....	120.20	119.68	119.95	119.75	119.90	121.10	120.48	119.70	120.35	122.70	121.82	128.08
14.....	120.15	119.70	119.85	119.75	120.22	120.75	119.90	120.10	120.35	122.40	121.38	128.30
15.....	120.30	119.72	119.85	120.00	120.18	120.50	120.28	120.10	120.30	122.05	121.22	126.45
16.....	120.30	119.88	119.95	119.92	120.10	120.45	120.55	119.95	120.42	122.08	121.12	125.45
17.....	120.42	119.70	119.85	119.95	120.10	120.40	120.70	120.20	120.75	121.88	121.42	125.10
18.....	120.30	119.75	119.88	119.87	120.40	120.10	120.95	119.68	120.62	121.70	120.80	124.10
19.....	120.35	119.88	120.05	120.20	119.85	120.30	120.70	120.15	120.50	122.15	121.18	123.40
20.....	120.25	119.65	119.82	119.80	120.00	120.28	120.80	120.20	120.50	123.10	120.48	123.62
21.....	120.00	119.52	119.95	120.22	120.10	120.23	120.40	120.00	120.42	125.68	121.70	121.52
22.....	119.95	119.60	119.90	120.10	119.88	120.15	120.75	119.95	120.52	126.25	121.30	121.95
23.....	119.65	119.80	119.75	120.45	119.80	120.52	120.65	120.00	120.65	126.95	121.00	121.72
24.....	120.15	119.90	119.65	120.45	120.25	120.15	120.75	120.00	121.28	126.78	121.50	121.28
25.....	120.28	119.95	120.35	120.40	120.95	119.75	120.55	119.85	121.25	125.85	121.52	121.40
26.....	120.15	119.85	120.20	120.18	121.30	120.45	120.50	120.05	122.15	125.68	121.70	121.52
27.....	120.00	119.65	120.25	119.75	121.20	120.40	120.30	120.45	122.85	124.65	121.18	121.15
28.....	119.90	119.75	120.25	119.80	121.05	120.32	119.95	120.30	124.62	123.90	121.20	120.90
29.....	119.88	120.05	120.15	119.82	120.88	120.30	120.30	.....	124.60	123.35	121.18	120.70
30.....	119.88	119.90	119.80	119.95	121.30	120.22	120.32	.....	124.80	123.32	121.90	121.20
31.....	119.82	119.80	.....	119.75	.....	120.10	120.25	.....	124.60	.....	122.80	.....

HUDSON RIVER AT CROCKER'S REEF DAM

Location.—At Crocker's reef dam across the Hudson river at the head of Thompson island about 6 miles below Fort Edward and about 2.2 miles above the dam at Fort Miller.

Drainage area.—2,959 square miles.

Records available.—Water-surface elevations, April 11, 1904, to June 30, 1917. Discharge, September 1, 1907, to June 30, 1917. Dam completed, August 27, 1907.

Gage.—The original gage was attached to an elm tree about 450 feet above the dam, on the east bank of the river. On July 17, 1915, a staff gage was located on the east side of the north end of the pier at the guard-gate and used until November, 1916, when it was replaced by a standard Type A gage, No. 118, which has a range of 12 feet, between elevations 118.0 and 130.0. A standard bench-mark plug is set in the pier near the gage at eleva-

tion 130.0 (B. C. datum). This gage indicates water-surface elevations practically equivalent to that at junction of canal and river, about 2,500 feet above, and is read twice daily to tenths and published in the accompanying table. From January 8, 1916, to November 30, 1916, the old gage on the elm tree was read once daily simultaneously with a third reading of the guard-gate gage.

Discharge computations.—Discharge estimates are based on theoretical computations using a varying coefficient and correcting for submergence. Velocity of approach has not been allowed for, as it was assumed that the surface slope from the gage to the dam would be approximately equivalent to the head due to velocity of approach.

Control.—Crest of dam at elevation 119.0, 760 feet long in two straight sections separated by head of island — the east, 480 feet, and the west, 280 feet in length. The dam is of concrete with an ogee crest carefully troweled to a uniform level for use as a gaging weir. This dam is free from gates or power-wheels. During higher stages the dam is submerged by backwater from the dam at Fort Miller.

Extremes of discharge.—Current year: Maximum stage recorded, elevation 125.9 at guard-gate on June 13 at 7:00 A. M.; discharge, 31,700 second-feet. Minimum stage recorded, elevation 119.3 at 5:00 P. M., August 13 and September 24; discharge, 360 second-feet.

1907–1917: Maximum stage recorded, elevation 129.56 on March 28, 1913, at 4 P. M.; discharge, 72,800 second-feet. A considerably higher stage is believed to have been reached earlier in the day. The 8:00 A. M. reading was not made. Minimum stage recorded, elevation 119.26 on June 19, 1913, at 7:00 A. M. and 5 P. M.; discharge, 280 second-feet.

Diversion.—During the navigation season water is diverted above this station to supply the old Champlain canal and the new Barge canal lock at Fort Miller. Except for the above the entire flow of the Hudson river passes over the dam.

Accuracy.—Discharge for current year has been reduced upon the same basis as used in former years. Allowance for submergence has been based upon estimated water-surface below the dam, and actual conditions as observed indicate that with about three

feet of water over the dam there is somewhat more submergence than has been allowed. From July 26, 1915, to January 8, 1916, and since December 1, 1916, a correction, varying with the gage height, has had to be applied to records obtained at the guard-gate in the Barge canal, to obtain the water-surface elevation above the dam. This correction has been taken from a curve drawn by plotting the elevations at the guard-gate as abscissas and the difference between the simultaneous readings at the guard-gate gage and the river gage as ordinates.

Regulation.—Daily flow affected somewhat by local storage above power dams at Fort Edward and Glens Falls.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE CROCKER'S REEF DAM, for the year ended June 30, 1917. John H. Donnelly, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	Jun e
1.....	120.35	119.6	119.65	119.5	119.9	121.25	120.05	120.1	120.15	123.0	122.15	121.35
2.....	120.15	119.7	119.7	119.6	119.7	121.55	119.7	120.1	120.3	123.45	122.05	121.6
3.....	120.4	119.75	119.5	119.7	119.8	121.95	119.8	120.05	120.2	124.45	122.2	121.35
4.....	120.55	119.6	119.75	119.7	119.7	121.25	119.8	119.6	120.3	124.55	122.15	121.25
5.....	120.65	119.55	119.75	119.75	119.6	121.5	119.9	120.0	120.1	124.65	122.15	121.15
6.....	120.5	119.55	119.9	119.9	119.95	120.95	120.2	119.9	120.25	124.4	121.85	121.1
7.....	120.4	119.55	120.05	119.75	119.85	121.0	120.05	119.9	120.05	123.95	121.9	121.15
8.....	120.25	119.6	119.75	119.6	119.85	120.9	119.95	120.0	120.05	123.45	121.9	121.35
9.....	120.35	119.7	119.7	119.6	119.7	120.95	120.0	119.9	120.25	123.05	121.5	121.55
10.....	120.25	119.65	119.55	119.7	119.85	120.75	120.2	120.0	120.15	122.55	121.5	121.45
11.....	120.15	119.75	119.4	119.75	119.9	121.1	120.15	119.65	119.85	122.1	121.4	122.25
12.....	120.1	119.8	119.75	119.7	119.8	120.95	120.15	119.9	120.05	122.0	121.25	124.4
13.....	119.9	119.45	119.7	119.7	119.9	120.9	120.1	119.85	120.2	122.0	121.15	125.85
14.....	120.05	119.65	119.7	119.6	120.0	120.65	119.85	119.95	120.15	121.8	121.0	125.05
15.....	119.95	119.7	119.75	119.8	119.85	120.3	119.9	119.95	120.25	121.5	120.95	124.15
16.....	120.0	119.65	119.65	119.6	119.75	120.3	120.4	119.85	120.4	121.55	120.8	123.6
17.....	120.0	119.7	119.5	119.85	119.7	120.0	120.45	119.9	120.5	121.3	120.95	123.6
18.....	120.2	119.65	119.5	119.7	119.8	119.95	120.5	119.6	120.45	121.2	120.6	122.8
19.....	120.1	119.65	119.7	119.65	120.0	119.95	120.5	120.0	120.3	121.5	120.7	122.25
20.....	119.8	119.75	119.6	119.7	119.95	119.9	120.5	119.95	120.35	122.0	120.35	122.05
21.....	119.6	119.65	119.65	120.0	119.85	119.95	120.05	119.9	120.15	123.4	121.2	121.6
22.....	119.7	119.5	119.6	120.2	119.7	120.1	120.3	119.95	120.35	124.0	120.3	121.4
23.....	119.65	119.55	119.55	120.1	119.7	120.1	120.25	119.9	120.55	124.45	120.6	121.25
24.....	119.7	119.75	119.4	120.2	119.9	119.95	120.3	119.95	121.05	124.45	120.5	120.95
25.....	119.9	119.7	119.75	120.2	120.4	119.95	120.15	119.6	121.1	123.9	120.7	121.0
26.....	119.9	119.65	120.1	119.95	121.0	120.15	120.2	119.95	121.55	123.25	120.45	121.05
27.....	119.85	119.55	119.95	119.7	120.9	120.2	120.05	120.2	122.0	123.0	121.15	120.75
28.....	119.75	119.6	119.85	119.75	120.8	120.0	119.6	120.15	123.0	122.45	120.95	120.55
29.....	119.7	119.95	119.85	119.7	120.8	119.95	119.9	.....	123.05	122.25	121.15	120.6
30.....	119.7	119.7	119.6	120.0	121.0	119.95	119.95	.....	123.2	122.1	121.3	121.0
31.....	119.75	119.85	.....	119.75	.....	119.8	120.0	.....	123.15	.....	121.8	.....

NOTE.—Above record taken in canal at guard-gate; see station description under gage.

Daily discharge, in second-feet, of HUDSON RIVER AT CROCKER'S REEF DAM, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3,810	1,770	1,070	965	1,100	7,860	2,470	2,670	2,870	17,400	12,700	8,340
2.....	2,750	1,580	1,020	884	1,640	9,350	1,370	2,670	3,430	19,700	12,100	9,630
3.....	4,380	1,340	753	1,250	1,400	11,600	1,670	2,470	3,070	24,500	12,900	8,340
4.....	6,990	1,770	1,050	1,400	1,430	7,880	1,670	1,070	3,430	25,100	12,700	7,880
5.....	6,600	1,550	1,810	1,250	1,400	9,070	2,020	2,290	2,670	25,500	12,700	7,290
6.....	5,230	1,580	1,670	2,350	2,140	6,320	3,070	2,020	3,230	24,300	11,000	7,050
7.....	4,190	1,580	1,980	1,640	2,320	6,600	2,470	2,020	2,470	22,000	11,200	7,290
8.....	3,230	1,340	1,100	1,400	2,020	6,100	2,170	2,290	2,470	19,700	11,200	8,340
9.....	3,150	1,370	1,400	1,490	1,770	6,320	2,290	2,020	3,230	17,600	9,070	9,350
10.....	3,470	1,400	804	1,280	2,390	5,390	3,070	2,290	2,870	14,900	9,070	8,820
11.....	2,350	2,050	804	1,400	2,110	7,050	2,870	1,220	1,840	12,400	8,580	13,200
12.....	2,630	1,460	1,840	1,370	1,250	6,320	2,870	2,020	2,470	11,900	7,860	24,300
13.....	2,290	1,880	1,370	1,100	1,250	6,100	2,670	1,840	3,070	11,900	7,290	31,600
14.....	3,310	1,640	1,370	1,160	2,950	4,900	1,840	2,170	2,870	10,700	6,600	27,500
15.....	2,430	1,460	1,370	1,340	2,550	3,430	2,020	2,170	3,230	9,070	6,320	23,000
16.....	2,290	1,580	1,400	1,770	2,080	3,430	3,810	1,840	3,810	9,350	5,010	20,400
17.....	3,470	1,550	1,100	1,400	2,050	2,290	4,040	2,020	4,240	8,100	6,320	20,400
18.....	3,550	1,460	1,460	1,280	2,630	2,170	4,240	1,070	4,040	7,540	4,670	16,300
19.....	3,270	1,490	1,910	1,100	1,640	2,170	4,240	2,290	3,430	9,070	5,120	13,200
20.....	1,980	1,160	1,460	1,220	1,580	2,020	4,240	2,170	3,580	11,900	3,580	12,100
21.....	1,460	884	1,340	2,550	2,050	2,170	4,240	2,020	2,870	19,400	7,540	9,630
22.....	1,840	830	1,050	2,020	1,700	2,670	3,430	2,170	3,580	22,300	3,430	8,580
23.....	1,020	1,100	1,050	3,310	1,550	2,670	3,230	2,020	4,480	24,500	4,670	7,860
24.....	2,260	1,840	804	3,350	2,630	2,170	3,430	2,170	6,820	24,500	4,240	6,320
25.....	2,260	1,640	2,260	2,990	3,770	2,170	2,870	1,070	7,050	21,800	5,120	6,600
26.....	2,950	1,520	2,750	2,550	5,880	2,870	3,070	2,170	9,350	18,600	4,040	6,820
27.....	2,260	911	2,750	1,220	6,050	3,070	2,470	3,070	11,900	17,400	7,290	5,390
28.....	1,940	1,550	1,810	1,640	5,340	2,290	1,070	2,870	17,400	14,300	6,320	4,480
29.....	1,580	1,840	1,910	1,220	4,720	2,170	2,020	.....	17,600	13,200	7,290	4,670
30.....	1,070	1,550	1,250	1,700	6,880	2,170	2,170	.....	18,400	12,400	8,100	6,600
31.....	2,200	1,190	.....	1,460	.....	1,670	2,290	.....	18,200	.....	10,700	.....
Mean...	2,975	1,480	1,457	1,647	2,609	4,597	2,755	2,078	5,806	16,701	7,914	11,705

NOTE.—Discharge computed by applying correction to guard-gate elevations, correction above elevation 123.7 being obtained by extending correction curve.

Monthly discharge of HUDSON RIVER AT CROCKER'S REEF DAM, for the year ended June 30, 1917

[Drainage area, 2,959 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	6,990	1,020	2,975	1.005	1.16
August.....	2,050	830	1,480	0.500	0.58
September.....	2,750	753	1,457	0.492	0.55
October.....	3,350	884	1,647	0.557	0.64
November.....	6,880	1,100	2,609	0.882	0.98
December.....	11,600	1,670	4,597	1.553	1.79
January.....	4,240	1,070	2,755	0.931	1.07
February.....	3,070	1,070	2,078	0.702	0.73
March.....	18,400	1,840	5,806	1.962	2.26
April.....	25,500	7,540	16,701	5.644	6.30
May.....	12,900	3,430	7,914	2.675	3.08
June.....	31,600	4,480	11,705	3.966	4.41
The year.....	31,500	753	5,136	1.736	23.55

HUDSON RIVER ABOVE DAM AT FORT MILLER

This station, established April 11, 1904, is located on the east bank of the Hudson river above the dam at Fort Miller. A board staff gage attached to a crib about 300 feet above the screen racks was transferred to the side wall of the head-race near the screen racks in 1913. In November, 1916, a standard Type A gage, No. 116, in two sections, was erected. The gage has a range of 12 feet, the lower section, attached to the side of the screen rack, reading from elevation 113.0 to elevation 121.0, and the upper section, attached to the side of the mill building, reading from elevation 121.0 to elevation 125.0. This dam has not been affected by Barge canal construction.

The gage is read twice daily—at 8 A. M. and 5 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE DAM AT FORT MILLER, for the year ended June 30, 1917. W. L. Sanders, Observer

DAT	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	115.85	114.85	114.7	115.5	115.45	116.35	116.2	116.25	116.45	118.7	118.0	117.8
2	116.06	114.7	114.65	115.5	115.4	116.6	115.85	116.15	116.3	119.4	117.9	117.5
3	116.15	114.8	115.25	115.45	115.15	117.0	115.95	116.3	116.45	119.6	118.2	117.5
4	116.2	115.1	114.85	115.55	115.05	116.65	115.9	116.2	116.6	119.7	118.2	117.55
5	116.1	114.6	114.8	115.5	115.2	116.55	116.0	115.65	116.25	119.7	118.0	117.25
6	116.1	115.4	115.25	115.95	115.2	116.35	116.45	115.6	116.4	119.55	117.9	117.05
7	115.85	115.25	114.95	115.25	115.15	116.45	116.5	115.35	116.35	119.05	117.7	117.3
8	115.55	114.55	114.7	115.4	115.2	116.55	116.0	115.35	115.95	119.1	117.6	117.35
9	115.85	114.95	114.75	115.45	115.2	116.4	116.05	115.55	115.85	118.6	117.65	117.35
10	115.85	114.7	114.95	115.5	115.35	116.55	116.3	115.55	116.0	118.2	117.5	117.6
11	115.2	114.9	114.85	115.5	115.5	116.55	116.25	115.65	116.3	117.6	117.25	117.7
12	115.3	114.85	115.2	115.4	115.4	116.3	116.3	115.55	116.1	117.25	117.4	119.5
13	115.3	115.1	115.45	115.4	115.25	116.2	116.3	115.7	116.2	116.1	117.4	120.5
14	115.3	114.95	115.5	115.5	115.6	116.05	116.3	115.55	116.15	116.95	117.4	120.1
15	115.4	114.85	115.6	116.0	115.45	115.7	115.9	115.65	116.4	117.2	117.45	119.4
16	115.9	114.75	115.7	115.6	115.4	115.75	116.3	115.65	116.4	117.1	116.85	118.95
17	115.7	114.7	115.95	115.45	115.25	115.9	116.25	115.75	116.6	117.15	117.1	119.0
18	115.5	114.6	116.2	114.95	115.65	115.2	116.4	116.35	116.9	117.25	116.7	118.55
19	115.55	114.6	115.7	115.0	115.5	115.3	116.6	116.05	116.4	117.35	116.95	118.05
20	115.1	115.4	115.65	115.0	115.35	115.4	116.45	116.05	116.65	117.75	116.85	117.75
21	114.75	114.85	115.6	115.55	115.15	115.45	116.55	115.9	116.25	118.8	117.2	117.35
22	114.9	114.65	115.6	115.95	114.9	115.5	116.4	115.85	116.6	119.35	116.45	117.3
23	115.45	114.55	115.55	115.8	114.85	115.6	116.3	115.75	116.65	119.65	116.85	117.25
24	115.15	114.7	115.45	115.85	115.4	115.9	116.4	115.9	117.0	119.55	116.9	117.25
25	115.1	114.3	115.95	115.5	116.05	115.6	116.45	116.1	117.3	119.2	117.15	117.1
26	115.3	114.75	116.45	115.4	116.45	115.55	116.4	115.8	117.75	118.7	117.3	117.05
27	115.15	114.85	116.0	115.05	116.4	115.85	116.4	116.35	118.1	118.75	117.8	117.0
28	115.1	114.9	115.8	115.3	116.05	115.45	116.45	116.25	118.8	118.35	117.05	116.9
29	114.8	115.3	115.75	115.5	114.0	115.35	116.1	.....	118.75	117.6	117.0	116.7
30	115.35	114.9	115.6	115.25	116.35	115.2	116.1	.....	118.75	117.65	117.35	116.95
31	115.3	115.1	.....	115.25	.....	115.75	116.15	.....	118.6	.....	117.85	.....

HUDSON RIVER BELOW DAM AT FORT MILLER

This station, established May 1, 1904, was originally located on the wall near the tail-race of the paper company, on the east bank of the river. From April, 1911, to November, 1916, it was located below Barge canal lock No. 6, on the third crib from the lower approach wall. On November 21, 1916, a standard Type A gage, No. 115, in two sections, was erected. The gage has a range of 15 feet, the lower section, attached to the return of the east lower approach wall of lock No. 6, reading between elevations 102.0 and 110.0, and the upper section, attached to the east abutment of the highway bridge over the lower end of lock No. 6, reading between elevations 110.0 and 117.0. A standard benchmark plug is set near the lower section at elevation 109.0 (B. C. datum) and an "H" cut in concrete beside the upper section at elevation 114.0 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 5 P. M. — to tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW DAM AT FORT MILLER, for the year ended June 30, 1917. W. L. Sanders, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	104.45	102.3	103.4	103.65	103.4	105.9	103.4	103.35	104.05	106.45	105.25	105.75
2.	104.65	103.5	103.5	103.65	103.15	106.0	102.4	103.4	103.95	106.9	105.2	105.5
3.	105.05	103.85	104.15	102.55	103.35	106.0	102.8	103.05	104.25	108.2	105.4	105.35
4.	105.0	103.8	104.1	103.6	103.3	105.85	102.6	102.4	104.5	108.5	105.4	105.35
5.	105.1	103.55	103.9	103.55	103.8	105.45	103.1	102.5	104.05	108.5	105.3	105.05
6.	104.9	104.1	103.6	104.15	103.55	105.5	103.9	102.0	104.25	108.2	105.05	105.1
7.	104.75	104.05	103.85	103.5	103.75	105.4	104.25	103.15	104.05	107.7	105.0	105.25
8.	104.35	103.35	103.35	104.15	103.7	105.5	103.5	103.1	102.95	107.1	104.8	105.3
9.	104.7	103.75	103.4	103.8	103.7	105.35	103.3	103.35	103.3	106.6	104.7	105.3
10.	104.65	103.5	103.7	103.5	103.9	105.65	103.7	103.5	104.0	105.9	104.3	105.55
11.	103.9	103.45	103.55	103.7	103.85	105.7	103.5	103.35	104.05	105.55	104.3	105.85
12.	103.55	103.5	103.8	103.65	103.85	105.25	103.75	103.05	103.7	105.15	104.2	108.4
13.	103.55	103.95	103.45	103.0	104.1	105.2	103.55	103.15	104.15	104.8	104.05	110.05
14.	103.75	103.85	103.45	103.65	101.25	105.0	103.6	102.95	104.0	104.6	103.95	109.3
15.	103.75	103.5	103.7	104.6	103.9	104.6	103.65	102.3	104.2	104.55	103.95	108.35
16.	104.9	103.5	103.65	103.9	103.9	104.3	104.1	102.55	104.25	104.35	103.65	107.55
17.	104.6	103.5	103.95	103.6	103.45	104.75	104.2	102.55	104.45	104.2	104.15	107.35
18.	104.15	103.5	104.15	103.4	104.25	103.7	104.4	102.6	104.85	104.05	104.15	106.7
19.	104.4	103.4	103.2	103.3	104.6	103.7	104.3	103.45	104.3	104.4	104.65	106.0
20.	103.3	104.2	103.05	103.45	104.2	103.5	104.0	103.0	104.15	105.05	104.6	105.6
21.	102.85	103.6	103.2	104.35	104.05	103.75	104.3	102.7	104.0	106.35	105.2	105.3
22.	103.1	102.75	102.95	104.95	103.9	103.75	103.95	102.65	104.05	107.7	104.1	105.05
23.	103.85	102.45	103.2	104.7	103.95	104.05	104.0	102.45	104.45	107.9	104.6	104.9
24.	103.4	103.7	103.65	104.6	104.1	104.85	103.75	102.6	105.35	107.95	104.75	104.75
25.	103.6	103.1	104.45	104.3	105.2	104.3	103.6	102.4	105.55	107.4	105.0	104.6
26.	104.1	103.45	104.0	103.8	105.85	103.7	103.45	103.45	105.75	106.95	105.05	104.45
27.	103.35	103.85	104.3	103.0	105.5	104.5	103.5	104.05	105.04	106.45	105.45	104.3
28.	103.3	104.0	103.65	103.5	105.1	103.9	103.9	103.7	106.3	106.1	104.85	104.25
29.	103.4	104.05	103.5	104.2	105.25	108.25	108.8	.....	106.15	105.7	104.65	104.15
30.	104.35	103.55	103.35	104.1	105.75	103.3	103.35	.....	106.3	105.5	105.2	104.6
31.	104.05	103.45	.....	103.75	.....	104.15	103.45	.....	106.3	.....	105.8	.....

HUDSON RIVER ABOVE DAM AT NORTHUMBERLAND

This station, established April 11, 1904, is located on the downstream side of the highway bridge crossing the Hudson river about 1,700 feet above the dam at Northumberland. The gage is a standard chain gage, read twice daily — at about 7 A. M. and 5 P. M.— to tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE DAM AT NORTHUMBERLAND, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	DAY	July	Aug.	Sept.	Oct.
1.....	104.6	103.5	103.55	104.05	16.....	105.05	103.95	103.65	104.1
2.....	104.95	103.75	103.65	104.0	17.....	104.7	103.6	104.2	103.65
3.....	105.2	103.85	104.45	103.2	18.....	104.45	103.7	104.7	103.65
4.....	105.25	103.75	104.1	103.75	19.....	104.25	103.6	103.5	103.7
5.....	105.3	103.55	103.95	103.75	20.....	103.35	104.4	103.35	103.75
6.....	105.05	104.5	103.75	104.1	21.....	103.05	103.65	103.3	104.45
7.....	104.9	104.2	103.9	103.8	22.....	103.4	103.15	103.4	105.0
8.....	104.8	103.65	103.55	104.45	23.....	103.8	103.5	103.35	104.8
9.....	104.95	104.0	103.65	104.1	24.....	104.2	104.05	104.1	.....
10.....	104.45	103.85	103.65	103.7	25.....	103.8	103.65	104.45	.....
11.....	103.85	103.75	103.65	103.75	26.....	104.15	103.55	104.15	.....
12.....	103.7	103.6	103.85	103.75	27.....	103.45	104.15	104.45	.....
13.....	103.55	103.9	103.55	103.55	28.....	103.4	104.15	103.75	.....
14.....	104.1	104.15	103.65	103.75	29.....	103.5	104.15	103.5	.....
15.....	104.05	103.95	103.65	104.7	30.....	104.5	104.2	103.25	.....
					31.....	104.25	103.65	.....	.....

NOTE.— This station was abandoned on October 23.

HUDSON RIVER ABOVE LOCK No. 5, NORTHUMBERLAND

This station, established October 24, 1916, is located at the upper end of lock No. 5. Above lock No. 5 the canal follows a land-line for about one mile, entering the river above the dam at Northumberland. The water-surface indicated by this gage is practically that at the junction of the canal and river above the dam. The gage, No. 114, is a standard Type A gage, secured to the upper end of the east upper gate recess, and has a range of 11 feet, between elevations 100.0 and 111.0. A standard benchmark plug is set in the wall near the gage at elevation 110.0 (B. C. datum).

The gage is read twice daily — at 8 A. M. and 4 P. M.—to half-tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE LOCK No. 5, NORTHUMBERLAND, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					103.40	105.18	103.45	103.52	104.02	105.7	104.68	105.42
2					103.20	105.58	102.38	103.72	103.92	105.82	104.75	105.2
3					103.25	105.55	102.9	103.4	104.08	106.62	104.9	105.3
4					103.15	105.35	102.68	101.92	104.38	106.82	104.78	105.12
5					103.95	105.02	103.12	101.62	103.85	106.78	104.80	104.92
6					103.50	104.92	103.78	103.18	104.15	106.55	104.75	104.88
7					103.50	104.90	104.3	103.15	103.88	106.32	104.65	104.95
8					103.25	104.85	103.45	103.2	103.28	106.05	104.35	105.12
9					103.25	104.75	103.28	102.98	103.82	105.52	104.35	105.15
10					103.45	105.08	103.68	103.25	103.75	104.98	104.25	105.42
11					103.50	104.88	103.72	102.95	104.18	104.8	104.2	105.25
12					103.80	104.75	103.7	103.05	103.62	104.55	104.1	107.38
13					103.45	104.68	103.38	102.62	104.05	104.42	104.32	108.3
14					103.75	104.38	103.32	102.62	103.98	104.22	103.7	107.8
15					103.65	103.90	103.58	102.42	104.05	104.38	103.6	107.12
16					103.45	103.70	104.06	102.7	104.22	104.1	103.42	106.68
17					103.55	104.30	104.12	102.65	104.3	103.82	104.18	106.50
18					104.20	103.60	104.28	102.98	104.7	103.82	104.0	106.05
19					104.20	102.82	104.28	103.35	104.08	104.1	104.55	105.68
20					103.80	103.08	104.28	103.15	104.3	104.58	104.52	105.28
21					104.02	103.00	104.3	102.75	104.05	105.75	104.98	105.0
22					103.60	103.18	104.02	102.6	104.28	106.5	104.1	104.82
23					103.48	103.70	103.95	102.58	104.22	106.65	104.52	104.7
24				104.15	103.85	104.32	103.9	102.68	104.85	106.62	104.48	104.78
25				103.85	104.68	103.62	103.68	102.2	105.15	106.22	104.85	104.5
26				103.40	105.35	103.18	103.62	102.95	105.5	105.82	104.78	104.4
27				102.80	104.95	103.90	103.45	103.98	104.8	105.62	105.32	104.35
28				103.25	104.82	103.40	103.12	103.65	105.68	105.22	104.6	104.1
29				104.25	104.75	102.75	104.08		105.55	105.15	104.5	104.12
30				103.40	105.10	103.10	103.2		105.62	104.88	105.05	104.58
31				103.25		103.48	108.7		105.52		105.65	

HUDSON RIVER AT FREE BRIDGE, LIBERTY MILLS

This station, established October 23, 1905, is located on the highway bridge across the Hudson river commonly known as Free bridge, about $\frac{3}{4}$ mile south, or downstream from the dam at Northumberland, about $\frac{1}{4}$ mile above the mouth of Batten kill and about $1\frac{1}{4}$ miles above the village of Schuylerville. The gage is a standard chain gage located on the downstream side of the bridge and is read twice daily — at 6:30 A. M. and 5:30 P. M. — to tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER AT FREE BRIDGE, LIBERTY MILLS, for the year ended June 30, 1917. Wm. B. Dunstan, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	85.9	84.9	84.95	84.5	85.15	87.9	85.3	85.65	86.4	90.7	88.6	88.5
2.....	85.95	84.6	84.95	84.55	85.0	88.4	85.4	85.7	86.05	91.5	88.2	88.05
3.....	86.15	84.8	84.5	84.7	85.0	87.8	85.35	85.55	85.95	93.15	89.35	87.2
4.....	86.25	84.9	84.75	84.85	84.95	87.8	85.4	85.5	83.05	93.45	89.0	87.5
5.....	85.95	84.35	85.0	85.05	84.7	87.4	85.55	85.6	86.0	93.25	88.8	87.35
6.....	86.1	84.15	84.9	84.9	84.8	87.3	85.4	85.7	85.9	92.9	88.4	87.3
7.....	86.15	84.35	84.8	84.8	85.2	87.5	85.75	85.6	85.7	92.3	89.1	87.2
8.....	85.85	84.45	84.7	84.85	85.3	87.3	85.7	85.55	86.0	91.2	88.3	87.45
9.....	85.6	84.7	84.5	84.85	85.2	87.05	85.85	85.5	85.8	90.2	88.4	87.5
10.....	85.7	85.05	84.4	84.9	85.1	87.0	85.9	85.45	85.55	89.7	88.05	87.5
11.....	85.8	84.9	84.55	84.65	84.7	87.05	85.65	85.5	85.3	89.2	87.65	88.15
12.....	85.55	85.0	84.45	84.95	84.5	87.0	85.55	85.45	85.75	88.6	87.45	92.5
13.....	85.5	84.7	84.6	84.95	84.95	87.05	85.5	85.4	86.3	88.2	88.5	95.2
14.....	85.6	84.9	84.9	84.9	85.55	86.45	85.6	85.15	86.25	88.2	87.2	94.75
15.....	85.45	85.0	85.35	85.1	85.4	86.0	85.9	85.05	86.35	87.7	86.95	92.3
16.....	85.4	84.8	85.0	85.15	85.3	86.2	86.1	85.1	86.15	87.7	86.6	91.6
17.....	85.6	84.9	84.9	84.9	85.1	86.0	86.4	84.95	86.25	87.3	87.1	90.95
18.....	85.45	84.5	85.15	84.9	85.2	85.65	86.3	84.9	86.3	87.1	86.4	90.6
19.....	85.6	84.8	85.35	84.75	85.2	85.3	86.15	84.95	86.2	87.55	86.85	89.2
20.....	85.45	84.55	84.95	84.9	85.35	85.25	85.8	85.1	85.95	88.2	85.75	88.45
21.....	85.1	84.4	84.9	85.9	85.35	85.35	85.7	85.2	85.7	90.75	87.1	88.25
22.....	85.1	84.3	84.85	85.8	85.2	85.3	85.6	85.25	86.15	92.3	86.0	87.45
23.....	84.95	84.45	84.65	86.2	85.15	85.25	85.75	85.25	86.75	92.9	86.25	87.3
24.....	85.1	84.65	84.4	85.95	86.25	85.3	85.85	85.1	87.4	92.9	86.35	86.8
25.....	85.15	84.95	85.15	85.9	86.9	85.5	85.9	85.15	87.25	92.3	86.95	86.95
26.....	85.1	84.8	85.65	85.4	87.1	85.9	85.8	85.25	88.25	91.2	87.0	86.7
27.....	85.2	84.6	85.3	85.15	87.05	86.1	85.8	87.7	89.1	90.4	86.5	86.2
28.....	85.05	85.15	85.95	85.0	86.85	85.65	85.8	86.7	90.85	89.75	86.8	83.1
29.....	84.8	85.4	86.2	85.0	86.9	85.3	85.55	.....	91.2	89.2	86.7	86.0
30.....	84.8	85.15	84.5	85.1	87.5	85.2	86.5	.....	91.2	89.4	87.3	86.4
31.....	85.0	84.95	.....	85.15	.....	85.1	85.5	.....	91.0	.....	88.3	.....

NOTE.—Gage heights affected by ice, December 25 to January 9 and January 13 to March 10 inclusive.

HUDSON RIVER BELOW LOCK No. 5, NORTHUMBERLAND

The concrete gage in the lock wall was read until November 19, when a standard Type A gage, No. 113, in two sections, was erected. The lower section is secured to the lower end of the east guide-wall and has a range of 12 feet, between elevations 82.0 and 94.0. The upper section is secured to the south end of the east lower thrust wall and has a range of 12 feet, between elevations 94.0 and 106.0. Standard bench-mark plugs are set in the wall near the gages, for the lower section at elevation 93.0 (B. C. datum) and for the upper section at elevation 97.0 (B. C. datum).

The gage is read twice daily—at 8 A. M. and 4 P. M.—to half-tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW LOCK No. 5 AT NORTHUMBERLAND, for the year ended June 30, 1917. G. W. Perkins, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	85.1	84.0	84.6	84.15	84.7	87.12	85.22	85.2	86.1	89.92	88.05	87.3
2.....	84.75	83.85	84.2	84.05	84.8	87.68	84.83	85.48	85.65	90.7	88.08	86.95
3.....	85.35	84.05	84.15	84.5	84.8	87.2	84.82	85.2	85.7	92.45	88.52	86.22
4.....	85.3	83.95	84.3	84.4	84.7	87.12	85.02	84.62	85.32	92.02	88.2	86.7
5.....	85.7	83.95	84.65	84.55	84.65	86.68	85.15	85.02	85.58	92.98	88.25	86.3
6.....	85.5	83.55	84.65	84.75	85.05	86.6	85.6	85.22	85.68	92.48	87.65	86.22
7.....	85.3	83.85	84.8	84.55	85.05	86.58	85.82	85.08	85.32	91.9	88.18	86.5
8.....	84.85	83.8	84.6	84.5	84.95	86.62	85.55	85.15	85.02	90.98	87.48	86.95
9.....	84.75	83.8	84.6	84.05	84.95	86.42	85.4	85.02	85.6	90.12	87.5	86.75
10.....	84.85	84.1	84.05	84.5	84.95	86.48	85.55	85.12	85.38	89.2	87.25	86.68
11.....	84.65	84.1	83.85	84.55	85.1	86.75	85.65	84.92	85.18	88.5	87.12	87.25
12.....	84.6	84.05	84.4	84.55	84.6	86.42	85.55	85.18	85.42	88.02	86.8	91.8
13.....	84.35	84.3	84.7	84.55	84.8	86.28	85.32	85.1	86.1	87.8	86.75	94.92.
14.....	84.55	83.75	84.65	84.25	85.3	86.0	85.08	85.02	85.82	87.45	85.28	94.15
15.....	84.55	83.9	84.7	84.55	85.05	85.75	85.68	85.02	85.82	87.0	86.15	92.2
16.....	84.65	84.0	84.55	84.5	85.05	86.5	86.0	84.8	85.8	87.15	85.85	90.88
17.....	84.85	83.95	84.55	84.75	85.0	85.42	86.1	85.0	86.3	86.65	86.15	90.15
18.....	84.75	83.8	84.7	84.5	84.95	85.35	85.2	84.85	86.18	86.45	85.48	89.68
19.....	84.6	84.4	84.8	84.45	84.78	85.05	86.1	84.72	85.65	86.8	85.82	88.42
20.....	84.35	84.4	84.55	84.45	84.98	85.15	86.08	85.08	85.9	87.9	85.0	87.62
21.....	84.05	84.15	84.4	85.15	85.0	85.15	85.58	84.88	85.38	89.72	86.35	87.12
22.....	84.1	83.95	84.4	85.3	84.88	85.28	85.9	84.85	85.82	91.62	85.2	86.8
23.....	83.9	84.0	84.55	85.45	84.68	85.75	85.85	84.95	86.0	92.5	85.6	86.45
24.....	83.9	84.65	84.35	85.3	85.45	85.6	85.6	84.85	87.08	92.52	85.1	86.05
25.....	84.2	84.55	84.35	85.3	86.08	85.02	85.38	84.68	86.75	91.62	86.22	86.3
26.....	84.45	84.6	84.65	85.2	86.6	85.25	85.45	84.98	87.6	90.62	85.88	86.0
27.....	84.3	84.25	85.05	84.65	86.45	85.55	85.38	87.4	88.25	90.0	86.42	85.85
28.....	84.25	84.5	84.85	84.75	86.1	85.38	84.82	86.48	90.18	89.1	85.92	85.55
29.....	84.05	84.9	84.9	84.6	86.05	85.15	85.4	.....	90.42	88.38	85.6	85.3
30.....	83.9	84.6	84.4	84.9	86.78	85.18	85.3	.....	90.52	88.38	86.55	85.78
31.....	84.0	84.65	.....	84.7	.....	84.82	85.2	.....	90.18	.....	87.58	.....

HUDSON RIVER AT TOLL BRIDGE, SCHUYLERVILLE

This station, established August 14, 1905, is located on the bridge across the Hudson river at Ferry street, Schuylerville, commonly known as Toll bridge. The gage is a standard chain gage located on the new truss across the Barge canal channel. The gage is read twice daily to tenths, the odd hundredths appearing in the table being due to the datum of the gage.

Emendation.—Due to an error in the datum of this gage, all elevations as published in the report of the State Engineer and Surveyor for 1916, Vol. II, page 250, should be 0.42 foot lower from February 7 to June 30, inclusive.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER AT TOLL BRIDGE SCHUYLERVILLE, for the year ended June 30, 1917. Charlie Cheney, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	84.83	83.98	84.53	84.08	84.68	86.73	85.03	85.13	85.73	89.38	87.48	85.03
2.....	84.58	83.83	84.33	84.03	84.68	87.23	84.83	85.23	85.38	89.98	87.58	86.48
3.....	85.13	83.88	84.13	84.23	84.68	87.13	84.93	85.13	85.38	91.58	87.98	85.98
4.....	85.18	83.93	84.23	84.03	86.68	84.88	84.73	85.13	92.23	87.83	86.23	
5.....	85.28	83.93	84.73	84.48	84.58	86.33	85.03	84.68	85.23	92.18	87.73	86.23
6.....	85.13	83.53	84.63	84.53	84.78	86.38	85.63	84.98	85.38	91.78	87.33	85.98
7.....	85.03	83.93	84.68	84.63	84.98	86.38	85.53	84.98	85.18	91.23	87.48	86.13
8.....	84.63	83.73	84.58	84.33	84.93	86.33	85.33	84.98	85.13	90.48	87.08	86.58
9.....	84.53	83.68	84.43	84.03	84.83	86.23	85.28	84.98	85.38	89.53	87.08	86.48
10.....	84.58	83.88	83.98	84.23	84.78	86.43	85.13	84.88	85.38	88.78	86.93	86.33
11.....	84.48	83.88	83.88	84.48	84.73	86.28	85.33	84.83	85.23	88.08	86.78	87.03
12.....	84.48	83.78	84.28	84.48	84.48	86.13	85.23	84.78	85.23	87.68	86.53	90.78
13.....	84.28	83.63	84.58	84.48	84.73	86.13	85.03	84.88	85.63	87.53	86.93	94.08
14.....	84.48	83.88	84.58	84.43	85.18	85.83	84.93	84.93	85.68	87.23	85.98	93.48
15.....	84.43	83.93	84.68	84.38	84.88	85.63	85.23	84.93	85.58	86.78	85.78	91.58
16.....	84.53	83.88	84.58	84.68	84.88	85.43	85.43	84.88	85.68	86.78	85.53	90.23
17.....	84.58	83.93	84.58	84.58	84.83	85.38	85.53	84.78	85.98	86.43	85.98	89.53
18.....	84.58	83.88	84.63	84.48	84.83	85.08	85.73	84.73	85.78	86.28	85.63	89.18
19.....	84.28	84.33	84.63	84.48	84.88	85.03	85.58	84.88	85.33	86.53	85.68	87.93
20.....	84.08	84.38	84.48	84.48	84.83	84.98	85.58	84.93	85.33	87.48	86.03	87.33
21.....	83.98	84.18	84.48	84.93	84.98	84.98	85.43	84.78	85.28	89.58	86.13	86.88
22.....	83.98	83.93	84.48	85.18	84.78	85.03	85.48	84.88	85.63	90.93	85.18	86.53
23.....	83.83	83.88	84.48	85.18	84.63	85.48	85.43	84.83	86.18	91.63	85.28	86.28
24.....	84.13	84.43	84.23	85.38	85.18	85.68	85.23	84.73	86.78	91.73	85.33	85.98
25.....	84.18	84.53	84.33	85.23	85.73	84.98	85.18	84.53	86.53	91.93	86.03	85.98
26.....	84.33	84.48	85.28	84.93	86.33	85.18	85.33	84.73	87.13	89.98	85.38	85.88
27.....	84.18	84.43	85.03	84.63	86.13	85.48	85.53	86.83	87.93	89.58	86.03	85.68
28.....	84.03	84.33	84.83	84.63	86.03	85.28	85.33	86.18	89.58	88.68	85.58	85.48
29.....	83.98	84.73	84.73	84.63	85.88	85.13	85.13	.....	89.88	87.93	85.43	85.28
30.....	83.83	84.58	84.88	84.78	86.48	84.98	85.13	.....	89.83	87.88	85.73	85.63
31.....	83.93	84.58	.....	84.68	.....	84.78	85.33	.....	89.63	.....	86.78	.....

HUDSON RIVER AT HIGHWAY BRIDGE, STILLWATER

This station, established December 28, 1907, is located at the highway bridge across the Hudson river at Stillwater, about 800 feet above the dam. The gage is a vertical staff attached to the downstream end of the first pier from the right, or west bank of the river. The gage is read twice daily — at 8 A. M. and 4 P. M. — to tenths. Because of the inaccessibility of this gage certain readings are of questionable accuracy.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER AT HIGHWAY BRIDGE, STILLWATER, for the year ended June 30, 1917. E. H. Elliott, Observer

DAY	July	Aug.	DAY	July	Aug.	DAY	July	Aug.
1.	84.85	83.95	11.	84.75	83.7	21.	84.15	84.05
2.	84.75	83.95	12.	84.65	83.75	22.	84.15	83.75
3.	85.15	83.9	13.	84.55	83.7	23.	84.05	83.7
4.	85.35	83.95	14.	84.55	83.65	24.	84.05	84.0
5.	85.4	83.95	15.	84.55	83.65	25.	84.15	83.95
6.	85.35	83.85	16.	84.35	83.65	26.	84.1	83.95
7.	85.15	83.75	17.	84.55	83.65	27.	84.1	84.05
8.	85.0	83.75	18.	84.35	83.75	28.	84.05	84.05
9.	84.95	83.75	19.	84.35	84.05	29.	84.0	84.05
10.	84.75	83.7	20.	84.3	84.15	30.	83.95	84.05
						31.	83.95	84.05

NOTE.— This station was abandoned August 31.

HUDSON RIVER BELOW DAM AT STILLWATER

This station, established July 15, 1909, is located on the west bank of the Hudson river below the dam at Stillwater. The staff gage at the tail-race of the A. T. Pack grist-mill was replaced on August 17, 1916, by a standard Type A gage in the same location and having a range of 11½ feet, between elevations 74.0 and 85.5 (B. C. datum).

The gage is read twice daily—morning and afternoon—to tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW DAM AT STILLWATER, for the year ended June 30, 1917. W. H. Handy, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	76.45	75.75	76.0	75.6	75.7	77.4	76.35	76.2	76.9	79.45	78.2	77.6
2.	76.4	75.75	75.9	75.6	75.7	77.85	76.25	76.7	76.6	79.7	78.35	77.7
3.	76.8	75.75	75.75	75.65	75.8	77.6	76.0	76.55	76.55	80.25	78.45	77.25
4.	76.8	75.75	75.7	75.65	75.7	77.5	76.1	76.35	76.6	80.4	78.3	77.35
5.	77.05	75.75	75.85	75.7	75.75	77.3	76.2	76.25	76.6	80.4	78.45	77.2
6.	77.05	75.75	75.85	75.85	75.7	77.15	76.4	76.6	76.55	80.25	78.4	77.35
7.	76.65	75.9	75.95	75.75	75.85	77.2	76.5	76.45	76.4	80.05	78.15	77.6
8.	76.45	76.25	75.85	75.6	75.9	77.2	76.35	76.5	76.35	80.1	77.9	77.65
9.	76.35	75.75	76.05	75.6	75.8	77.05	76.3	76.4	76.6	80.3	77.85	77.45
10.	76.65	75.85	75.7	75.6	75.8	77.05	76.45	76.45	76.5	79.8	77.8	77.4
11.	76.3	75.85	75.85	75.6	75.9	77.25	76.55	76.5	76.45	79.1	77.75	77.75
12.	76.3	75.8	75.8	75.7	75.65	77.1	76.9	76.6	76.5	78.15	77.7	80.15
13.	76.15	75.75	75.95	75.6	75.7	77.0	76.65	76.55	76.75	78.0	77.45	81.1
14.	76.3	75.8	75.95	75.65	76.3	76.85	76.35	76.4	76.6	77.7	77.25	80.75
15.	76.35	75.75	75.9	75.6	75.9	76.4	76.85	76.5	76.55	77.65	77.1	80.25
16.	76.3	75.8	76.05	75.7	75.85	76.25	76.65	76.45	76.6	77.65	77.0	79.5
17.	76.2	75.7	75.75	75.7	75.75	76.25	76.85	76.3	76.85	77.4	76.85	79.15
18.	76.3	75.85	75.95	75.8	75.75	76.2	76.75	76.35	76.65	77.3	76.75	79.05
19.	76.25	75.8	75.9	75.6	75.75	76.0	77.2	76.4	76.45	77.55	76.6	78.4
20.	76.2	75.75	76.1	75.8	75.8	76.25	76.7	76.3	76.65	78.25	76.6	77.95
21.	75.85	75.9	75.85	76.2	75.85	76.2	76.45	76.35	76.5	79.15	76.8	77.75
22.	76.1	75.75	75.95	76.15	75.75	76.2	76.7	76.85	76.7	80.15	76.65	77.55
23.	76.15	75.95	75.85	76.3	75.65	76.95	76.75	76.35	77.0	80.15	76.8	77.4
24.	76.15	76.9	75.7	76.35	76.1	76.8	76.6	76.4	77.7	80.2	76.55	77.2
25.	76.05	75.95	75.9	76.3	76.6	76.8	76.4	76.35	77.9	79.75	76.85	77.2
26.	76.25	75.85	76.3	76.15	77.15	76.9	76.5	76.35	78.1	79.45	76.75	77.0
27.	76.15	75.7	76.15	75.75	77.15	77.45	76.35	76.35	78.55	79.1	77.3	77.1
28.	75.95	75.85	75.95	75.6	76.9	77.35	76.35	77.3	79.3	78.75	76.8	76.8
29.	75.85	76.0	75.8	75.6	76.8	77.3	76.15	.....	79.5	78.6	76.8	76.6
30.	75.75	75.9	75.7	75.7	77.35	77.25	76.05	.....	79.45	78.4	77.5	77.15
31.	75.9	75.9	.....	75.7	.....	77.3	76.15	.....	79.4	.....	77.9	.....

HUDSON RIVER ABOVE LOCK No. 4, STILLWATER

This station, established April 1, 1916, is located at the upper end of Barge canal lock No. 4 at Stillwater. Above the lock a land-line about 2,400 feet long joins the Hudson river about 1,400 feet above the dam. The water-surface indicated approximates that at this junction. The upper concrete staff gage in the lock was used until October 31. Since November 1 a standard Type A gage, No. 109, has been used. This gage is secured to the west upper gate recess and has a range of 12 feet, between elevations 81.0 and 93.0. A standard bench-mark plug is set in the wall near the gage at elevation 92.0 (B. C. datum).

The gage is read twice daily—at 8 A. M. and 4 P. M.—to tenths, with occasional readings to half-tenths and even hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE LOCK No. 4 AT STILLWATER, for the year ended June 30, 1917. E. H. Elliott, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	84.8	83.95	84.5	84.45	84.62	86.05	84.8	85.3	85.0	87.18	86.22	85.75
2.....	84.7	83.8	84.5	84.15	84.64	86.25	84.98	85.3	85.0	87.38	86.18	85.72
3.....	84.85	83.85	84.3	84.5	84.55	86.28	84.5	85.3	85.0	88.2	86.34	85.3
4.....	84.9	84.0	84.2	84.4	84.6	86.25	84.65	85.3	85.0	88.38	86.25	85.55
5.....	84.8	83.8	84.55	84.45	84.62	86.3	84.5	85.3	85.0	88.42	86.32	85.32
6.....	84.95	83.55	84.55	84.5	84.82	85.8	84.8	85.3	85.0	88.18	86.0	85.31
7.....	84.85	83.45	84.6	84.6	84.95	85.8	85.3	84.8	85.0	88.4	86.05	85.54
8.....	84.5	83.8	84.6	84.7	84.85	85.85	85.3	84.8	85.0	87.48	85.82	85.65
9.....	84.65	83.7	84.5	84.0	84.8	85.8	85.0	84.75	85.0	87.56	85.9	85.56
10.....	84.5	83.85	84.45	84.55	84.82	85.8	85.0	84.8	85.0	86.78	85.88	85.56
11.....	84.4	83.95	83.95	84.5	84.78	85.75	85.0	84.8	85.0	86.42	85.68	85.75
12.....	84.2	84.0	84.25	84.6	84.75	85.8	85.0	84.8	84.8	86.12	85.5	87.48
13.....	84.3	84.1	84.35	84.45	84.8	85.9	85.2	84.8	84.8	86.02	85.58	89.1
14.....	84.4	83.8	84.55	84.45	85.0	85.8	85.1	84.75	84.8	85.85	85.42	88.98
15.....	84.3	83.9	84.5	84.5	84.9	85.7	85.2	84.65	84.8	85.7	85.45	88.1
16.....	84.45	83.9	84.6	84.6	84.75	85.4	85.3	84.5	84.8	85.72	85.1	87.45
17.....	84.4	83.9	84.55	84.7	84.8	85.3	85.3	84.45	84.8	85.5	85.32	87.08
18.....	84.5	83.8	84.55	84.45	84.95	85.1	85.3	84.45	a	85.42	84.92	87.02
19.....	84.4	84.35	84.7	84.55	84.8	84.68	85.3	84.9	a	85.55	85.08	86.36
20.....	84.35	84.4	84.5	84.6	84.92	84.91	85.3	84.7	a	85.95	84.6	86.02
21.....	84.2	84.3	84.45	84.9	84.92	84.92	85.3	84.7	a	87.05	84.45	85.62
22.....	83.95	83.95	84.4	85.3	84.7	84.98	85.2	84.7	a	87.7	84.65	85.58
23.....	83.95	83.9	84.55	85.3	84.88	85.17	85.3	84.7	a	88.1	85.0	85.2
24.....	84.05	84.45	84.45	85.3	85.2	85.2	84.9	84.9	85.1	88.2	84.7	85.28
25.....	84.05	84.5	84.25	85.15	85.48	85.2	84.9	84.6	85.55	87.74	85.12	85.28
26.....	84.2	84.6	85.25	85.1	85.8	85.0	84.9	84.6	85.95	87.34	85.0	85.12
27.....	84.1	84.4	84.9	84.85	85.9	84.8	84.9	84.95	86.37	87.1	85.52	85.08
28.....	84.1	84.7	84.8	84.65	85.7	85.3	84.9	85.0	87.15	86.65	85.08	84.98
29.....	84.1	84.7	84.7	84.55	85.9	85.1	85.0	.....	87.34	86.4	84.92	84.8
30.....	84.05	84.5	84.75	84.6	86.0	85.3	85.15	.....	87.42	86.3	85.38	84.98
31.....	83.85	84.55	.....	84.55	.....	85.25	85.3	.....	87.22	.....	85.85	.....

a No record.

HUDSON RIVER BELOW LOCK No. 4, STILLWATER

This station, established October 19, 1916, is located at the lower end of lock No. 4. The water-surface indicated is that of the upper end of the pool maintained by the dam of the West Virginia Pulp and Paper Company. The gage, No. 108, is a standard Type A gage in two sections. The lower section is secured to the nosing at the lower end of the west lock wall and has a range of $11\frac{1}{2}$ feet, between elevations 65.0 and 76.5. The upper section is secured to the end of the west lower thrust wall of the lock and has a range of 8 feet, between elevations 76.5 and 84.5. Standard bench-mark plugs are set in the walls near the gages, for the lower section at elevation 76.0 (B. C. datum) and for the upper section at elevation 79.0 (B. C. datum).

The gage is read twice daily—at 8 A. M. and 4 P. M.—to tenths, with occasional readings to half-tenths and even hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW LOCK No. 4 AT STILLWATER, for the year ended June 30, 1917. E. H. Elliott, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	70.3	69.95	70.3	70.45	67.7	69.85	72.5	72.75	72.85	71.9	70.3	69.75
2.....	69.95	69.96	70.0	69.95	67.75	70.0	72.25	72.75	71.9	72.18	70.28	69.9
3.....	70.7	69.9	70.5	70.25	67.45	70.22	71.45	72.35	70.3	72.82	70.48	69.62
4.....	71.15	69.65	70.65	70.05	67.6	69.5	71.55	72.25	69.45	72.98	70.38	69.5
5.....	70.95	69.7	70.35	70.25	67.92	69.3	71.5	72.05	71.05	72.88	70.5	69.35
6.....	70.85	69.95	70.4	70.35	67.85	69.3	71.0	72.4	72.8	72.65	70.6	69.32
7.....	70.4	70.2	70.4	67.7	67.78	69.3	71.85	72.4	71.5	72.38	70.38	69.54
8.....	69.95	69.8	70.2	68.3	67.75	69.4	71.75	72.65	69.15	72.26	70.05	69.74
9.....	70.75	70.0	70.2	67.7	67.5	69.35	71.4	72.2	69.45	71.5	70.08	69.51
10.....	70.45	70.2	70.35	67.75	67.2	69.55	71.25	72.15	69.3	71.05	70.0	69.92
11.....	69.15	70.15	70.15	67.75	68.25	69.35	72.6	72.2	69.2	70.72	69.92	69.89
12.....	69.45	70.05	70.25	67.65	68.1	69.2	72.75	71.75	68.95	70.32	69.8	71.82
13.....	69.9	69.9	70.4	67.6	67.75	69.15	73.25	71.75	70.85	70.22	70.05	73.28
14.....	69.5	70.35	70.25	67.45	68.2	68.8	71.6	72.28	69.95	70.0	69.52	73.02
15.....	70.5	70.0	70.4	67.85	67.7	68.55	73.7	72.7	68.9	70.12	69.38	72.4
16.....	71.6	70.15	70.35	67.6	67.7	68.2	72.5	71.9	69.15	69.88	68.98	71.76
17.....	70.95	70.0	70.65	67.9	67.75	68.85	73.1	72.18	69.85	69.65	69.28	71.58
18.....	70.7	70.15	70.55	68.0	67.7	68.45	72.85	72.4	a	69.6	68.7	71.19
19.....	70.35	69.7	70.3	67.45	68.32	68.45	73.0	71.5	a	69.6	68.92	70.51
20.....	70.2	71.1	70.2	67.65	67.7	69.0	73.1	71.65	a	70.1	68.7	70.1
21.....	69.65	70.3	70.1	68.15	67.75	68.46	72.3	71.75	a	71.62	69.45	69.88
22.....	69.75	69.8	70.2	68.75	67.72	68.9	72.7	71.8	a	72.68	68.42	69.82
23.....	70.0	70.2	69.95	68.45	67.4	71.24	73.3	72.05	a	72.55	68.72	69.68
24.....	69.95	70.5	70.6	68.25	68.0	72.2	72.9	71.8	70.32	72.6	68.9	69.72
25.....	69.65	70.35	70.4	67.95	69.1	72.58	72.45	71.3	70.82	72.15	69.4	69.3
26.....	70.45	70.25	71.0	68.2	69.9	72.25	72.85	71.55	70.58	71.76	68.98	69.12
27.....	70.25	70.2	70.5	67.75	69.4	71.95	72.3	76.1	71.05	71.36	69.9	69.08
28.....	70.25	70.6	70.35	67.45	69.1	71.8	72.35	74.75	72.45	70.9	69.08	69.8
29.....	69.45	70.6	70.2	68.25	68.9	71.9	72.55	.....	72.1	70.9	68.98	68.45
30.....	69.75	70.3	70.3	67.66	69.3	72.35	72.35	.....	71.95	70.45	69.3	68.9
31.....	70.25	70.2	.....	67.8	.....	72.5	72.55	.....	71.68	.....	69.92	.....

a No record.

HUDSON RIVER ABOVE DAM No. 3, MECHANICVILLE

This station, established October 19, 1916, is located at the upper end of lock No. 3. The water-surface indicated is that above the dam of the West Virginia Pulp and Paper Company. The gage, No. 106, is a standard Type A gage in two sections. The lower section is secured to the nosing at the upper end of the east lock wall and has a range of $11\frac{1}{2}$ feet, between elevations 65.5 and 77.0. The upper section is secured to the face of the old abutment at the upper end of the east lock wall and has a range of 8 feet, between elevations 77.0 and 85.0. Standard bench-mark plugs are set near the gages, for the lower section at elevation 76.0 (B. C. datum) and for the upper section at elevation 80.0 (B. C. datum).

The gage is read twice daily—morning and afternoon—to hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE DAM No. 3 AT MECHANICVILLE, for the year ended June 30, 1917

DAT	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.					67.74	70.05	70.24	70.35	69.36	71.91	70.38	69.92
2.					67.99	70.16	70.13	70.05	68.91	72.14	70.37	69.86
3.					67.79	70.24	70.36	69.53	68.61	72.65	70.55	69.86
4.					67.81	69.86	70.69	70.45	69.28	72.74	70.46	69.60
5.					68.08	69.58	70.94	69.10	68.60	72.74	70.56	69.46
6.					67.90	69.40	70.84	70.15	68.85	72.52	70.65	69.37
7.					67.82	69.48	71.98	69.60	68.40	72.35	70.44	69.55
8.					67.75	69.52	70.96	69.95	68.20	72.16	70.16	69.78
9.					67.70	69.41	70.72	68.69	68.60	71.52	70.26	69.66
10.					67.32	69.65	70.89	68.65	68.46	71.04	69.98	69.92
11.					67.90	69.54	70.85	68.96	69.12	70.78	69.94	69.94
12.					68.22	69.27	70.50	68.75	68.25	70.46	69.83	71.77
13.					67.82	69.26	70.42	69.18	69.49	70.25	70.11	73.19
14.					68.39	68.94	71.24	68.80	69.26	70.06	69.50	72.91
15.					67.78	68.52	70.90	68.82	68.86	70.28	69.56	72.32
16.					67.74	67.90	71.46	a	68.92	70.00	69.13	71.60
17.					67.82	68.88	71.47	69.22	69.43	69.66	69.46	71.56
18.					67.91	68.15	71.65	69.49	70.59	69.58	68.80	71.22
19.					68.55	67.80	71.50	68.70	68.81	69.77	68.91	70.51
20.					67.82	68.40	71.48	68.81	69.15	70.26	68.78	70.23
21.					67.92	68.00	71.92	68.55	68.56	71.60	69.46	70.00
22.					67.82	68.85	70.78	68.22	69.08	72.56	69.22	69.85
23.					67.62	71.12	71.10	68.21	69.30	72.40	68.86	69.64
24.					68.28	72.06	70.44	68.65	70.36	72.42	68.53	69.62
25.					69.15	71.76	69.70	68.80	70.82	72.00	69.50	69.36
26.				67.96	69.80	70.50	70.35	68.16	70.71	71.50	69.09	69.22
27.				67.74	69.34	71.20	70.26	70.91	70.96	71.41	70.00	69.20
28.				67.60	69.18	70.90	70.80	69.82	72.27	70.94	69.14	68.88
29.				68.29	69.09	70.58	69.66	.....	71.98	70.86	69.08	68.66
30.				67.78	69.46	70.48	70.30	.....	71.90	70.59	69.44	68.94
31.				67.90	.....	71.29	70.36	.....	71.64	.....	70.02	.....

a No record.

HUDSON RIVER BELOW DAM No. 3, MECHANICVILLE

This station, established October 19, 1916, is located at the lower end of lock No. 3. The water-surface indicated is that below the dam of the West Virginia Pulp and Paper Company and at the upper end of the pool above the dam of the Adirondack Electric Power Corporation. The gage, No. 105, is a standard Type A gage in two sections. The lower section is secured to the nosing at the lower end of the east wall of the lock and has a range of $10\frac{1}{2}$ feet, between elevations 46.0 and 56.5. The upper section is secured to the lower end of the east thrust wall of the lock and has a range of 12 feet, between elevations 56.5 and 68.5. Standard bench-mark plugs are set in the walls near the gages, for the lower section at elevation 52.0 (B. C. datum) and for the upper section at elevation 59.0 (B. C. datum).

The gage is read twice daily—morning and afternoon—to hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW DAM No. 3 AT MECHANICVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.					47.88	50.78	48.08	48.35	50.02	52.55	50.76	50.19
2.					47.96	50.30	48.29	48.26	49.50	53.53	50.86	49.90
3.					47.98	50.26	48.05	48.00	49.01	54.36	51.16	49.36
4.					47.89	50.48	48.25	48.16	48.52	54.44	50.94	49.98
5.					47.92	50.10	48.36	47.74	49.45	54.39	51.08	50.03
6.					47.96	49.79	48.24	48.04	49.42	54.06	50.58	49.98
7.					48.03	49.82	48.56	48.12	48.90	53.84	50.92	50.24
8.					48.01	49.81	48.57	48.25	48.35	53.06	50.36	50.44
9.					47.98	49.74	48.45	48.00	48.74	52.63	50.55	49.98
10.					47.83	49.63	48.60	48.15	48.72	51.96	50.36	49.78
11.					48.08	49.92	48.64	48.20	48.16	51.43	50.24	50.42
12.					47.74	49.70	48.66	48.10	48.50	50.92	50.16	52.90
13.					48.07	49.72	48.25	48.13	50.20	50.75	50.28	55.03
14.					48.19	49.38	47.81	48.05	49.66	50.40	49.94	54.82
15.					47.88	48.94	48.58	48.16	49.10	49.86	49.90	53.76
16.					48.08	48.58	49.20	a	49.10	50.38	49.62	52.78
17.					48.01	48.43	49.24	48.10	49.82	50.08	50.08	52.14
18.					47.89	48.50	49.39	48.02	49.74	49.92	49.31	52.18
19.					47.69	48.06	49.36	48.09	49.78	50.16	49.46	51.09
20.					47.98	48.11	49.36	48.19	49.56	50.88	49.00	50.56
21.					47.94	48.18	48.42	48.06	48.86	52.72	50.31	50.31
22.					47.85	48.21	48.87	47.95	49.42	53.37	49.64	50.20
23.					47.96	49.88	48.98	47.94	49.81	53.90	49.33	49.90
24.					47.98	48.20	48.62	47.90	50.88	54.18	49.14	49.78
25.					49.40	48.06	48.36	47.95	50.50	53.45	50.21	49.84
26.				48.01	49.88	48.87	48.50	48.02	51.29	52.69	49.68	49.75
27.				48.00	49.79	48.71	48.12	51.54	51.82	52.45	50.28	49.68
28.				47.88	49.53	48.33	47.76	50.44	53.75	51.80	49.64	49.32
29.				48.00	49.42	48.22	48.08		53.33	51.00	49.51	49.00
30.				48.15	50.04	48.06	48.42		52.90	51.22	50.11	49.38
31.				48.06		47.92	48.18		52.78		50.64	

a No record.

**HUDSON RIVER AT WEST VIRGINIA PULP AND PAPER CO.'S MILL
(UPPER DAM), MECHANICVILLE**

Location.— At the Duncan dam of the West Virginia Pulp and Paper Company in Mechanicville, Saratoga county, 3,700 feet above the mouth of Anthony kill, $1\frac{1}{2}$ miles below the mouth of Hoosic river and about 19 miles above the mouth of Mohawk river at Cohoes.

Drainage area.— 4,500 square miles.

Records available.— 1888 to 1917.

Gage.— Water-stage recorder at the dam, installed in 1910; previous to that date staff gage.

Computations of discharge.— Discharge over spillway determined from a rating curve based on United States Geological Survey coefficients for dams of ogee section. Discharge through turbines estimated from records of their operation.

Extremes of discharge.— Current year: Maximum daily discharge, 36,270 second-feet, June 13. Minimum daily discharge, 882 second-feet, Sunday, August 27.

1888–1917: Maximum discharge recorded, 120,000 second-feet at 6 A. M., March 28, 1913.* The plant is occasionally shut down and at these times the flow of the river is being stored in the pond, so that the discharge below the station occasionally becomes practically zero.

Diversions.— Water diverted above this station into the Champlain canal. No correction made for this diversion. During 1915 a Barge canal lock through the Duncan dam was completed and put into operation.

Coöperation.— Records computed and furnished by Mr. W. J. Barnes, Engineer of the West Virginia Pulp and Paper Company.

* Highest known flood prior to this time occurred April, 1869. Calculated discharge, 70,000 second-feet. See Water-Supply Paper 65, page 51, and report of U. S. Board of Engineers on Deep Waterways, Part I, pages 377–388.

Daily discharge, in second-feet, of HUDSON RIVER AT WEST VIRGINIA PULF AND PAPER Co.'s MILL (UPPER DAM), MECHANICVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1....	4,228	2,469	1,598	1,555	2,230	12,140	3,234	3,236	6,798	26,009	13,847	12,943
2....	4,300	2,558	1,272	1,746	2,349	13,118	3,154	2,912	5,416	30,264	14,189	10,094
3....	7,141	2,662	1,058	1,683	2,159	11,654	3,547	2,098	5,504	34,901	14,995	9,633
4....	6,823	2,256	1,074	1,654	2,212	10,675	3,671	1,453	5,051	35,498	14,621	9,992
5....	7,484	1,738	1,720	1,794	2,016	9,862	3,855	1,709	4,756	34,171	14,921	9,114
6....	6,630	1,138	1,928	2,496	2,938	9,160	5,097	2,061	5,035	32,391	14,162	9,202
7....	4,243	2,324	2,125	2,063	3,405	9,484	5,634	2,003	4,497	29,900	13,883	10,133
8....	4,555	1,629	1,700	1,634	2,985	9,559	4,907	2,246	4,101	26,328	12,448	10,801
9....	4,798	1,841	1,434	1,552	2,876	9,043	4,758	2,097	4,728	23,344	12,526	10,290
10....	4,097	2,165	957	1,671	2,627	8,436	4,989	2,042	4,624	18,150	11,896	11,284
11....	4,142	2,262	1,190	1,808	2,849	9,014	4,620	1,132	5,678	15,516	10,811	13,570
12....	3,952	1,943	1,754	1,810	2,601	8,365	4,342	1,834	6,552	14,218	10,392	30,129
13....	3,517	989	1,889	1,530	3,139	7,500	3,593	1,808	8,029	13,121	10,499	36,278
14....	4,300	1,981	1,805	1,441	3,743	6,418	4,382	1,914	6,555	11,847	8,759	33,148
15....	4,105	2,009	1,950	1,326	3,089	5,224	5,665	1,883	6,069	11,696	7,906	26,934
16....	4,000	1,885	2,453	1,964	2,921	4,435	6,844	1,938	7,295	10,797	7,481	23,743
17....	4,424	1,898	2,095	2,115	2,997	4,020	7,347	1,796	8,687	9,641	7,860	22,256
18....	4,073	1,616	3,030	2,055	3,215	4,057	7,356	1,247	9,026	9,346	6,423	18,907
19....	4,022	1,424	2,834	2,011	2,588	3,904	6,720	2,032	5,931	11,165	6,258	16,005
20....	3,183	1,262	2,187	2,154	3,238	3,791	5,737	2,048	7,118	15,979	6,120	13,279
21....	2,326	1,546	1,947	3,993	3,440	3,413	5,981	2,065	5,653	23,740	7,812	12,052
22....	2,231	1,224	2,061	4,127	2,831	3,903	4,809	2,104	7,368	28,498	5,404	10,827
23....	1,513	1,314	1,907	4,143	2,757	5,637	4,704	2,134	9,211	30,298	6,814	9,792
24....	2,846	1,970	1,133	3,889	4,669	5,493	4,034	1,740	24,882	28,916	7,007	9,010
25....	2,822	1,635	2,469	3,521	7,585	4,281	3,469	1,198	17,159	24,913	8,765	9,178
26....	3,580	1,541	3,278	3,147	8,772	5,509	3,237	3,090	17,965	22,039	9,135	8,789
27....	3,574	929	3,141	2,086	8,117	5,301	2,981	16,027	22,807	19,460	9,654	7,683
28....	3,484	1,623	2,552	2,204	7,664	4,507	2,078	8,621	31,788	16,552	7,789	6,783
29....	2,235	2,256	2,431	1,821	7,378	3,854	2,496	.....	28,213	15,323	8,178	6,351
30....	1,571	1,704	1,748	2,376	11,337	3,294	2,710	.....	26,589	14,355	10,079	8,408
31....	3,032	1,797	.....	2,034	.....	3,819	3,039	.....	24,602	.....	13,125	.....
Mean...	3,976	1,792	1,960	2,563	4,025	6,738	4,485	2,731	10,893	21,280	10,121	14,220

NOTE.—Includes water used for canal purposes.

Monthly discharge of HUDSON RIVER AT WEST VIRGINIA PULF AND PAPER Co.'s MILL (UPPER DAM), MECHANICVILLE, for the year ended June 30, 1917
[Drainage area, 4,500 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	7,484	1,513	3,976	0.884	1.02
August.....	2,662	929	1,792	0.398	0.459
September.....	3,278	957	1,960	0.436	0.486
October.....	4,143	1,326	2,563	0.570	0.657
November.....	11,337	2,016	4,025	0.894	0.997
December.....	13,118	3,294	6,738	1.497	1.73
January.....	7,356	2,078	4,485	0.997	1.15
February.....	16,027	1,132	2,731	0.607	0.632
March.....	31,788	4,101	10,893	2.42	2.79
April.....	35,498	9,346	21,280	4.73	5.28
May.....	14,995	5,404	10,121	2.25	2.59
June.....	36,278	6,351	14,220	3.16	3.53
The year.....	36,278	929	7,065	1.570	21.32

HUDSON RIVER AT TOLL BRIDGE, MECHANICVILLE

This station, established August 16, 1905, is located at the highway bridge crossing the Hudson river at Mechanicville, commonly known as Toll bridge, about 2 miles above the lower dam and about $\frac{3}{4}$ mile below the upper dam. The gage is a standard chain gage located on the upstream side of the first span from the west end of the bridge. Readings are taken twice daily — at 8 A. M. and between 4:30 and 5:30 P. M.— to half-tenths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER AT TOLL BRIDGE, MECHANICVILLE, for the year ended June 30, 1917. Byron Stedman, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	48.70	47.90	48.05	47.85	47.92	50.70	48.25	48.42	49.95	52.50	50.65	50.10
2.....	47.90	47.85	47.95	47.98	48.0	50.72	48.28	48.38	49.35	53.28	50.65	49.85
3.....	49.30	48.15	47.82	48.12	48.1	50.15	48.12	48.10	49.15	54.02	50.98	49.35
4.....	49.05	47.98	47.85	48.18	48.05	50.35	48.22	48.00	48.60	54.15	53.75	50.00
5.....	49.22	47.85	47.98	48.20	47.75	49.95	48.20	47.90	49.55	54.08	50.90	49.92
6.....	49.32	47.62	47.85	48.10	48.1	49.8	48.38	48.30	49.35	53.80	50.65	49.80
7.....	48.88	48.15	47.90	48.02	48.22	49.82	48.45	48.18	48.88	53.50	50.80	50.10
8.....	48.52	47.85	47.95	47.98	48.05	49.85	48.58	48.38	48.45	52.85	50.30	50.32
9.....	48.75	47.90	48.02	48.02	48.1	49.62	48.48	48.10	48.58	52.38	50.45	49.90
10.....	48.75	47.82	47.75	48.08	48.05	49.48	48.65	48.35	48.70	51.75	50.20	49.70
11.....	48.25	48.02	47.95	48.05	48.1	49.9	48.65	48.15	48.25	51.25	50.08	50.35
12.....	48.15	47.95	48.00	48.10	47.65	49.68	48.88	48.20	48.68	50.80	50.10	52.90
13.....	47.95	47.68	48.02	48.05	48.15	49.68	48.40	48.22	50.05	50.60	50.20	54.72
14.....	48.32	48.00	48.05	48.02	48.3	49.32	48.00	48.18	49.55	50.25	49.85	54.40
15.....	48.25	47.90	48.00	48.02	48.05	48.95	49.08	48.20	49.15	49.90	49.90	53.52
16.....	48.60	47.85	47.85	48.15	47.95	48.38	49.22	48.20	49.25	50.25	49.55	52.58
17.....	48.52	47.85	47.85	48.20	48.1	47.92	49.32	48.20	49.90	49.95	50.00	52.10
18.....	48.40	47.92	48.10	48.12	47.98	48.5	49.42	48.05	49.98	49.88	49.30	51.85
19.....	48.22	47.90	48.08	47.90	47.85	48.1	49.30	48.30	49.85	50.18	49.40	50.98
20.....	47.85	48.00	47.95	48.00	48.0	48.25	49.32	48.35	49.35	51.20	48.65	50.45
21.....	47.95	47.90	47.75	48.15	47.95	48.3	48.32	48.20	48.95	52.58	50.10	50.12
22.....	48.00	47.95	47.90	48.20	47.90	48.35	48.95	48.20	49.40	53.40	49.18	50.05
23.....	47.85	47.92	48.02	48.35	47.98	49.42	48.95	48.05	49.55	53.62	49.40	49.75
24.....	47.98	48.02	47.80	48.25	48.32	48.4	48.70	48.02	50.90	53.70	49.00	49.58
25.....	48.02	47.90	48.05	48.02	49.42	48.3	48.48	48.02	50.58	53.10	50.10	49.80
26.....	48.25	48.05	48.28	47.90	49.80	48.95	48.48	48.15	51.02	52.55	49.60	49.70
27.....	48.18	47.90	48.10	48.12	49.72	48.7	48.30	51.52	51.75	52.15	40.52	49.62
28.....	48.08	47.98	47.98	48.05	49.52	48.4	48.02	50.42	53.50	51.45	49.62	49.30
29.....	48.02	48.20	48.08	47.90	49.45	48.18	48.32	.....	53.02	50.90	49.60	48.95
30.....	47.65	47.95	47.95	48.18	50.05	47.98	48.35	.....	52.85	51.00	50.10	40.35
31.....	48.20	47.95	.....	47.92	.....	47.9	48.32	.....	52.50	.....	50.42	.....

HUDSON RIVER ABOVE DAM No. 2, MECHANICVILLE

This station, established October 19, 1916, is located at the upper end of lock No. 2. The gage, No. 104, is a standard Type A gage secured to the splay wall at the upper end of the lock and has a range of 12 feet, between elevations 44.0 and 56.0. A standard bench-mark plug is set in the wall near the gage at elevation 52.0 (B. C. datum).

The gage is read twice daily — morning and afternoon — to half-tenths, with occasional readings to hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE DAM No. 2 AT MECHANICVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....					47.58	49.90	47.82	47.78	49.12	51.00	49.62	49.35
2.....					47.85	49.88	47.90	47.95	48.60	51.80	49.55	49.55
3.....					47.80	49.42	47.65	47.90	48.38	51.35	49.82	48.80
4.....					47.72	49.65	47.80	47.90	48.08	52.45	49.80	49.45
5.....					47.52	49.30	47.85	47.65	48.40	52.42	49.90	49.35
6.....					47.72	49.08	48.05	47.90	48.30	52.22	49.75	49.30
7.....					47.82	49.15	47.98	47.90	48.00	51.70	49.70	49.60
8.....					47.72	49.15	48.05	48.00	47.70	52.05	49.35	49.60
9.....					47.72	49.00	47.90	47.80	48.18	51.05	49.45	49.25
10.....					47.68	49.00	47.90	47.85	48.12	50.55	49.25	49.25
11.....					47.80	49.22	48.12	47.65	47.60	50.20	49.25	49.55
12.....					47.50	49.15	48.30	47.95	48.02	49.90	49.35	51.15
13.....					47.75	49.08	47.95	47.85	48.50	49.70	49.50	52.75
14.....					47.90	49.82	47.72	47.70	49.05	49.45	49.25	52.70
15.....					47.62	48.48	48.40	47.65	48.55	49.18	49.25	51.92
16.....					47.62	47.92	48.52	47.60	48.18	49.45	49.05	51.25
17.....					47.85	47.60	48.68	47.65	49.25	49.25	49.55	50.82
18.....					47.58	47.98	48.75	47.55	49.00	49.22	48.80	50.72
19.....					47.47	47.54	48.70	47.65	49.10	49.45	49.25	49.95
20.....					47.70	47.72	48.70	47.80	48.82	49.80	48.55	49.45
21.....					47.80	47.85	48.00	47.78	48.40	51.15	49.60	49.25
22.....					47.62	47.95	48.20	47.70	48.70	51.50	48.80	49.30
23.....					47.80	48.98	48.22	47.60	49.02	52.05	48.85	49.10
24.....					47.85	47.90	48.05	47.80	50.02	52.05	48.80	49.20
25.....				47.80	48.95	47.65	47.95	47.65	49.82	51.60	49.60	49.00
26.....				47.75	49.34	48.49	47.90	47.70	49.95	51.15	49.20	49.15
27.....				47.68	49.25	48.12	47.85	49.75	50.48	50.82	49.05	49.05
28.....				47.70	48.80	48.78	47.85	49.35	51.92	50.30	49.00	48.75
29.....				47.75	48.72	47.80	47.85	.....	51.60	49.95	49.10	48.50
30.....				47.85	49.45	47.65	47.90	.....	51.40	49.90	49.60	48.75
31.....				47.72	.....	47.65	47.68	.....	51.28	.....	49.80	.....

HUDSON RIVER AT DAM OF ADIRONDACK ELECTRIC POWER CORPORATION (LOWER DAM), MECHANICVILLE

Location.—At the dam of the Adirondack Electric Power Corporation across the Hudson river, which is the lower dam in the village of Mechanicville, about $2\frac{1}{2}$ miles below the upper, or Duncan dam of the West Virginia Pulp and Paper Company.

Drainage area.—4,570 square miles.

Records available.—Water-surface elevations, August 18, 1905, to June 30, 1917. Discharge October 1, 1897, to June 30, 1917.

Gages.—The gage above the dam is a vertical staff attached to a crib upstream from the power-house. Lower gage is a reference point on the hand-rail of downstream truss of highway bridge to Barge canal lock about 150 yards below power-house. This gage indicates elevation in tail-race. Both gages were read twice daily—at 8 A. M. and 5 P. M.—to tenths. Upon the establishment of standard gages above and below lock No. 2, the reading of these gages was discontinued.

Discharge computations.—Discharge is determined by the flow over the crest of the dam and the water passed through the wheels of the power company.

Extremes of discharge.—Current year: Maximum daily mean recorded, June 13, as 40,632 second-feet. Minimum daily mean recorded, September 10, as 1,232 second-feet.

1897–1917: Maximum water-surface above dam recorded, elevation 58.5 on March 28, 1913, at 8 A. M.; discharge estimated by Department of State Engineer as about 94,000 second-feet. Minimum daily mean recorded, on August 29, 1909, at 24 second-feet.

Coöperation.—Records of flow over the dam and through the wheels are computed and furnished by the Adirondack Electric Power Corporation through Mr. George E. Fifield, Local Superintendent, to which are added estimated amounts of water used for canal purposes.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE DAM OF ADIRONDACK ELECTRIC POWER CORPORATION (LOWER DAM), MECHANICVILLE, for the year ended June 30, 1917. Geo. E. Fifield, Observer

DAY	July	Aug.	Sept.	Oct.	DAY	July	Aug.	Sept.	Oct.
1.....	48.3	47.8	47.9	47.75	16.....	47.9	47.75	47.8	47.9
2.....	47.85	47.8	47.8	47.7	17.....	48.05	47.75	47.7	47.8
3.....	48.65	47.8	47.8	47.8	18.....	48.0	47.85	47.85	47.75
4.....	48.75	47.8	47.8	47.9	19.....	47.8	47.85	47.8	47.8
5.....	48.65	47.75	47.85	47.8	20.....	47.65	47.85	47.75	47.7
6.....	48.9	47.7	47.75	48.8	21.....	47.75	47.75	47.75	47.75
7.....	48.45	47.85	47.85	47.85	22.....	47.8	47.9	47.8	47.9
8.....	48.05	47.8	47.8	47.75	23.....	47.75	47.8	47.8	47.9
9.....	48.45	47.7	47.85	47.75	24.....	47.7	47.8	47.75	47.85
10.....	48.25	47.75	47.8	47.85	25.....	47.7	47.8	47.8	47.7
11.....	47.85	47.9	47.85	47.75	26.....	47.8	47.85	47.85	47.75
12.....	47.8	47.95	47.85	47.75	27.....	47.85	47.85	47.75	47.8
13.....	47.65	47.75	47.85	47.75	28.....	47.7	47.8	47.8	47.85
14.....	48.0	47.8	47.9	47.8	29.....	47.85	47.9	47.75	47.75
15.....	47.85	47.8	47.75	47.85	30.....	47.8	47.8	47.8	47.9
					31.....	47.9	47.8	.....	47.8

NOTE.— This gage discontinued October 31.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW DAM OF ADIRONDACK ELECTRIC POWER CORPORATION (LOWER DAM), MECHANICVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	DAY	July	Aug.	Sept.	Oct.
1.....	31.4	30.4	30.25	30.55	16.....	31.0	30.35	30.65	30.35
2.....	31.15	30.45	30.1	30.4	17.....	31.15	30.35	30.8	30.55
3.....	31.7	30.65	29.9	30.45	18.....	31.35	30.4	30.85	30.55
4.....	31.65	30.55	30.0	30.3	19.....	31.2	30.25	30.7	30.1
5.....	31.9	30.45	30.1	30.45	20.....	31.0	30.2	30.65	30.35
6.....	31.65	30.05	30.55	30.35	21.....	30.6	30.45	30.65	30.95
7.....	31.65	30.3	30.5	30.6	22.....	30.55	30.15	30.5	31.25
8.....	31.45	30.3	30.45	30.55	23.....	30.35	30.35	30.6	31.35
9.....	31.25	30.5	30.35	30.25	24.....	30.95	30.4	30.3	31.2
10.....	31.45	30.65	30.15	30.3	25.....	30.6	30.3	30.05	30.85
11.....	31.2	30.4	30.05	30.3	26.....	30.95	30.2	30.95	30.95
12.....	31.35	30.45	28.7	30.4	27.....	30.7	30.3	30.9	30.65
13.....	31.15	30.2	30.3	30.5	28.....	30.85	30.15	30.75	30.5
14.....	30.7	30.4	30.45	30.25	29.....	30.8	30.4	20.75	.....
15.....	30.85	30.55	30.45	30.4	30.....	30.45	30.35	30.7	.....
					31.....	30.8	30.5	.....	.....

NOTE.— This gage abandoned October 31.

Daily discharge, in second-feet, of HUDSON RIVER AT DAM OF ADIRONDACK ELECTRIC POWER CORPORATION (LOWER DAM), MECHANICVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	5,797	3,020	2,079	1,866	2,551	13,517	3,998	4,953	7,999	27,628	18,236	15,151
2.....	4,976	2,712	1,661	2,298	2,737	15,659	3,828	4,907	6,563	31,810	18,065	15,219
3.....	6,560	3,035	1,376	2,190	2,342	14,414	4,206	3,738	6,365	35,496	18,671	9,722
4.....	6,763	2,609	1,530	1,880	2,602	13,376	4,201	3,110	5,632	36,748	17,919	11,071
5.....	8,019	2,307	2,325	1,905	2,230	11,854	4,510	3,216	6,185	38,073	18,716	10,833
6.....	7,597	1,427	2,542	2,633	3,520	10,198	5,130	3,791	6,319	36,271	15,569	10,841
7.....	6,343	2,242	3,147	2,659	3,479	11,099	5,881	3,945	5,794	34,730	18,763	11,901
8.....	5,641	2,646	2,358	2,028	3,732	10,682	6,223	4,202	5,332	30,144	16,879	12,954
9.....	4,813	2,244	2,167	1,959	3,005	10,786	5,660	3,841	5,774	27,844	16,365	13,013
10.....	5,496	2,645	1,232	2,104	3,291	8,843	5,964	3,496	6,087	24,511	13,963	12,128
11.....	5,105	2,746	1,498	2,036	3,241	10,193	6,022	2,893	5,111	22,078	12,346	14,063
12.....	4,142	2,349	1,974	2,362	2,078	10,259	5,814	3,379	5,989	19,669	12,878	27,309
13.....	3,870	1,341	2,990	1,787	3,789	10,232	4,929	3,886	10,146	18,461	12,925	40,632
14.....	4,730	2,250	2,187	1,837	3,792	7,944	3,554	3,690	7,857	17,438	11,528	40,210
15.....	5,125	2,571	2,444	1,783	3,623	6,524	6,530	3,769	7,083	14,686	10,024	34,944
16.....	4,876	2,360	2,854	2,359	3,267	4,972	7,458	3,482	8,804	15,837	10,007	27,306
17.....	5,393	2,136	2,401	2,313	3,164	4,434	7,698	3,429	9,101	14,207	9,621	23,661
18.....	5,239	2,128	3,498	2,426	3,760	4,715	7,792	3,110	8,815	12,826	7,939	24,911
19.....	4,916	1,801	3,713	2,342	2,969	3,876	7,540	3,167	8,312	13,622	7,734	23,435
20.....	4,318	1,654	2,815	2,361	3,619	4,387	6,684	3,663	8,615	17,762	6,963	17,454
21.....	3,416	1,834	2,030	3,829	4,043	3,752	5,074	3,048	6,866	26,986	9,595	14,474
22.....	3,284	1,459	2,329	4,695	3,339	4,061	5,783	3,233	8,382	31,180	7,610	13,383
23.....	2,056	1,631	2,225	5,076	2,775	6,117	6,559	3,222	9,066	24,459	7,641	12,375
24.....	3,153	1,922	1,553	5,312	4,334	5,707	5,433	3,368	14,134	37,791	8,464	10,980
25.....	3,443	2,089	2,303	5,165	8,226	4,908	4,832	2,607	17,435	32,621	11,001	10,618
26.....	4,350	2,058	4,634	3,680	11,379	5,463	4,913	3,342	18,075	29,129	8,831	9,421
27.....	3,973	1,401	3,453	2,606	10,001	5,823	4,359	14,878	21,812	26,053	11,876	9,165
28.....	3,807	2,025	2,951	2,107	8,605	5,862	3,479	11,577	27,251	22,483	8,446	8,004
29.....	3,640	2,737	3,008	2,545	8,196	4,810	4,223	.....	30,164	19,900	8,386	7,111
30.....	2,497	2,368	*2,900	2,738	9,760	4,176	4,156	.....	29,199	19,687	10,328	7,916
31.....	3,282	2,186	.....	2,587	.....	3,040	4,560	.....	28,121	.....	14,572	.....
Mean...	4,724	2,192	2,449	2,693	4,449	7,799	5,387	4,223	11,366	25,671	12,320	16,674

* Estimated by Department of State Engineer.

NOTE.—Water used for canal purposes is included.

Monthly discharge, in second-feet, of HUDSON RIVER AT DAM OF ADIRONDACK ELECTRIC POWER CORPORATION (LOWER DAM), MECHANICVILLE, for the year ended June 30, 1917

[Drainage area, 4,570 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	8,019	2,056	4,724	1.034	1.19
August.....	3,035	1,341	2,192	0.480	0.55
September.....	4,534	1,232	2,449	0.536	0.60
October.....	5,312	1,783	2,693	0.589	0.68
November.....	11,379	2,078	4,449	0.974	1.09
December.....	15,659	3,040	7,799	1.707	1.97
January.....	7,792	3,479	5,387	1.177	1.36
February.....	14,878	2,607	4,223	0.924	0.96
March.....	30,164	5,111	11,366	2.487	2.87
April.....	38,073	12,826	25,671	5.617	6.27
May.....	18,763	6,963	12,320	2.697	3.11
June.....	40,632	7,111	16,674	3.649	4.07
The year.....	40,632	1,232	8,319	1.820	24.72

HUDSON RIVER ABOVE DAM No. 1, NEAR WATERFORD

This station, established October 19, 1916, is located at the upper end of lock No. 1. The gage, No. 102, is a standard Type A gage secured to the upper end of the east upper gate recess and has a range of 20 feet, between elevations 19.0 and 39.0. A standard bench-mark plug is set in the wall near the gage at elevation 38.0 (B. C. datum).

The water-surface elevation is regulated by six Taintor gates.

The gage is read twice daily — at 7 A. M. and 3 P. M. — to half-tenths and even hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE DAM No. 1, NEAR WATERFORD, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....					30.56	32.63	19.24	19.38	21.66	22.61	31.30	32.63
2.....					30.62	32.78	*	20.19	21.22	26.21	31.41	32.65
3.....					30.52	32.52	19.30	20.52	21.23	27.50	31.68	32.02
4.....					30.56	32.55	19.06	20.46	20.45	28.77	31.52	32.36
5.....					30.52	32.32	19.50	21.69	20.16	30.46	31.64	32.17
6.....					30.89	32.14	19.22	21.90	19.80	31.34	31.28	32.10
7.....					30.75	32.18	19.54	20.72	19.80	32.58	31.50	32.35
8.....					30.90	32.19	19.68	19.97	19.80	31.78	31.05	32.44
9.....					30.72	32.08	19.64	19.82	20.10	31.42	31.18	32.39
10.....					30.68	31.98	19.75	19.55	21.40	30.55	30.95	32.32
11.....					30.66	32.10	19.94	20.42	20.95	30.08	30.98	32.66
12.....					30.60	31.48	19.52	20.78	20.90	29.29	30.67	32.45
13.....					30.80	29.28	19.12	20.81	21.49	28.86	30.58	34.48
14.....					31.12	28.51	19.41	20.80	20.95	27.97	31.24	34.30
15.....					30.37	23.81	19.92	20.81	20.95	28.74	32.15	33.64
16.....					30.96	19.70	20.96	20.77	20.80	32.58	31.89	32.98
17.....					30.64	19.61	21.11	20.80	21.30	32.35	32.12	32.50
18.....					30.68	19.75	21.02	20.78	21.28	32.24	31.76	32.45
19.....					30.72	19.32	21.22	20.78	20.50	32.38	31.95	31.68
20.....					30.88	19.30	21.31	20.79	20.50	32.75	31.36	32.04
21.....					30.95	*	19.90	20.84	20.00	33.99	32.35	32.61
22.....					30.78	*	21.22	20.82	20.20	34.46	31.74	32.35
23.....					30.62	20.16	21.30	20.86	20.35	34.19	31.76	32.28
24.....					30.94	19.78	19.95	20.90	22.14	33.74	31.51	31.98
25.....				31.08	31.74	19.70	19.70	20.88	23.62	33.34	32.24	32.06
26.....				30.94	32.16	19.80	19.62	20.78	23.98	32.85	31.84	31.92
27.....				30.66	32.00	20.65	19.24	22.85	25.05	32.57	32.31	31.92
28.....				30.46	31.82	19.68	19.30	22.53	27.08	31.56	31.90	31.73
29.....				30.58	31.78	19.64	19.22		26.13	31.60	31.60	31.48
30.....				30.74	32.18	19.50	19.48		25.62	31.66	32.19	31.67
31.....				30.61		19.56	19.48		25.06		32.58	

NOTE.— December 12 at 3 P. M. to December 15 at 4 P. M., 1 Taintor gate open; December 15 at 4 P. M. to January 10 at 11 A. M., 5 Taintor gates open; January 10 to April 4 at 2:30 P. M., 6 gates open; April 4 to April 6 at 1 P. M., 4 gates open; April 6 to April 15 at 2:30 P. M., 2 gates open; April 15 to April 23 at 1 P. M., all gates closed; April 23 to May 14 at 11:15 A. M., 6 gates open; May 14 to June 12 at noon, all gates closed; June 12 to June 20, 1 gate open; June 20 to June 30, all gates closed.

* Taintor gates raised; water below gage.

HUDSON RIVER BELOW DAM No. 1, NEAR WATERFORD

This station, established October 19, 1916, is located at the lower end of lock No. 1. The water-surface indicated is at the upper end of the pool maintained by the new Federal dam at Troy. The gage, No. 101, is a standard Type A gage in two sections. The lower section is secured to the north end of the west lower approach wall and has a range of 13 feet, between elevations 12.0 and 25.0. The upper section is secured to the lower end of the lower west thrust wall and has a range of 11 feet, between elevations 25.0 and 36.0. Standard bench-mark plugs are set in the walls adjacent to the gages, the one for the lower section being at elevation 24.0 (B. C. datum) and the one for the upper section being at elevation 27.0 (B. C. datum).

The gage is read twice daily — at 7 A. M. and 3 P. M. — to half-tenths and even hundredths.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW DAM No. 1, NEAR WATERFORD, for the year ended June 30, 1917

DAT	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					17.07	20.58	18.18	18.38	20.08	21.68	20.04	19.72
2					17.18	20.34	17.58	18.44	19.25	23.54	20.32	19.76
3					17.28	19.70	17.84	18.07	18.95	24.50	20.73	18.90
4					17.04	19.55	18.01	17.89	18.66	24.05	20.62	19.05
5					17.38	19.50	18.04	17.68	18.31	23.88	20.42	19.00
6					17.86	19.51	18.19	18.24	18.79	23.38	20.82	18.82
7					17.82	19.50	18.42	17.86	18.38	23.25	20.65	19.00
8					17.76	19.20	18.57	17.89	18.26	22.54	20.38	19.48
9					17.65	19.20	18.45	17.94	18.45	21.86	20.20	19.88
10					17.38	19.25	18.51	17.72	18.48	21.15	20.08	19.72
11					17.75	19.32	18.53	17.68	18.24	20.52	19.92	19.89
12					17.21	19.44	18.46	17.79	18.30	20.18	19.62	24.22
13					17.41	18.95	19.88	17.81	19.69	20.05	19.52	25.54
14					17.85	18.75	18.08	17.72	19.66	19.81	19.20	24.95
15					17.82	18.38	18.55	17.81	19.12	18.98	19.05	23.20
16					17.82	18.32	19.06	17.79	19.00	19.58	18.78	21.82
17					17.42	18.13	19.11	17.72	19.38	19.15	19.07	21.81
18					17.60	17.92	19.02	17.78	19.32	19.10	18.66	21.08
19					17.42	17.78	19.05	17.76	19.13	19.26	18.80	20.18
20					17.68	17.88	19.21	17.79	19.20	19.92	18.28	19.70
21					17.70	17.65	18.52	17.82	19.54	22.03	19.00	19.72
22					17.66	17.85	18.85	17.86	18.74	22.88	18.55	19.45
23					17.29	18.21	19.31	17.86	19.10	23.30	18.53	19.05
24					17.80	18.32	18.78	17.89	20.47	23.05	18.28	18.81
25				17.60	19.48	18.18	18.00	17.82	22.59	22.46	18.98	19.11
26				17.37	19.48	18.00	18.56	17.62	22.70	21.80	18.65	18.79
27				17.02	19.08	18.32	18.48	19.84	23.75	21.30	19.11	18.90
28				18.93	18.72	18.22	17.96	20.73	25.25	20.78	18.60	18.72
29				16.88	18.05	18.12	18.27	.....	23.75	20.17	18.78	18.38
30				17.00	19.51	17.87	18.40	.....	22.80	20.20	19.95	19.48
31				16.84	.....	18.02	18.28	.....	22.24	.....	20.08	.....

HUDSON RIVER ABOVE FEDERAL DAM, TROY

This station is located at the upper end of the Federal lock at Troy and indicates the water-surface of the Hudson river above the Federal dam, completed November 18, 1915. An inlaid tile vertical staff gage on the east lock wall is read to tenths every four hours. The zero of this gage is 2 feet below mean sea-level and 1.13 feet below Barge canal datum.

Records are taken and furnished by the United States Engineer Office, Albany, N. Y. Records obtained during construction prior to October 1, 1915, have not been published.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER ABOVE FEDERAL DAM AT TROY, for the year ending June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	17.25	16.14	16.65	17.22	16.97	20.14	17.55	17.71	19.19	20.50	19.30	18.90
2.....	16.64	15.96	16.54	16.99	17.17	19.54	17.43	17.54	18.65	21.85	19.55	19.00
3.....	17.30	15.88	16.42	16.98	17.19	19.10	17.65	17.33	18.43	22.40	19.70	18.60
4.....	17.80	15.79	16.49	16.62	17.15	18.94	17.79	17.20	18.15	21.40	19.60	18.60
5.....	17.74	15.75	16.65	16.70	17.55	19.01	17.92	17.12	17.99	21.40	19.55	18.50
6.....	17.60	15.67	16.64	16.84	17.67	19.09	18.07	17.27	18.00	21.35	20.10	18.30
7.....	17.40	14.89	16.68	17.12	17.60	18.95	18.19	17.32	18.05	21.35	19.70	18.60
8.....	16.84	15.47	16.71	17.07	17.54	18.69	18.17	17.38	17.85	21.00	19.70	19.05
9.....	16.67	15.76	16.56	16.77	17.40	18.52	18.17	17.39	17.85	20.40	19.55	19.25
10.....	16.67	15.53	16.56	16.70	17.27	18.77	18.07	17.27	17.85	20.50	19.30	19.30
11.....	16.70	15.57	16.55	16.70	17.47	18.87	18.09	17.10	17.90	19.65	19.15	19.30
12.....	16.65	15.67	16.51	16.69	17.27	18.67	17.80	16.97	17.95	19.35	18.90	22.75
13.....	16.36	15.80	16.62	16.64	17.35	18.40	17.75	16.90	18.80	19.30	18.95	23.00
14.....	16.92	15.57	16.61	16.59	17.64	18.45	17.77	16.94	18.95	19.20	18.85	22.10
15.....	17.05	15.89	16.95	16.59	17.59	18.15	17.79	17.02	18.95	18.80	18.40	20.70
16.....	16.77	16.18	17.26	16.62	17.59	18.15	18.34	16.89	18.45	18.90	18.30	20.35
17.....	16.79	16.15	17.29	16.79	17.42	17.75	18.30	16.89	18.60	18.75	18.70	20.00
18.....	16.65	16.16	17.22	16.74	17.85	17.54	18.20	17.09	18.60	18.65	18.30	19.85
19.....	16.50	15.97	17.10	16.70	17.51	17.45	17.87	17.07	18.55	18.70	18.45	19.00
20.....	16.42	15.87	16.95	a	17.50	17.44	18.09	17.05	18.30	18.50	18.00	19.95
21.....	16.09	15.86	16.80	a	17.57	17.50	18.09	17.04	18.25	20.55	18.65	19.10
22.....	15.87	15.71	16.90	17.90	17.45	17.63	17.65	17.05	18.30	21.20	18.25	18.80
23.....	15.57	15.71	17.12	17.75	17.32	17.97	17.82	17.07	18.45	21.30	18.25	18.70
24.....	15.86	15.86	16.97	17.25	18.00	17.89	17.77	16.88	20.20	21.15	18.10	18.40
25.....	16.31	16.05	16.80	17.30	19.12	17.95	17.75	16.67	21.80	20.65	18.45	18.70
26.....	16.37	16.19	17.33	17.25	18.92	17.64	17.67	17.12	21.70	20.30	18.30	18.50
27.....	16.70	16.16	17.35	16.99	18.50	17.92	17.54	18.92	22.50	19.95	18.25	18.55
28.....	16.97	16.22	17.04	16.82	18.07	17.94	17.39	19.45	23.40	19.70	18.25	18.50
29.....	16.38	16.62	17.15	16.69	18.30	17.84	17.32	.....	22.00	19.20	18.45	18.20
30.....	16.19	16.61	17.17	16.94	19.39	17.67	17.44	.....	21.35	19.05	19.55	19.05
31.....	16.15	16.62	.....	16.84	.....	17.37	17.57	.....	20.75	.....	19.25	.....

a No record.

HUDSON RIVER BELOW FEDERAL DAM, TROY

This station, established May 1, 1916, is located at lower end of the Federal lock at Troy and indicates water-surface of the Hudson river below the Federal dam. An inlaid tile vertical staff gage on the east lock wall is read twice daily — at 8 A. M.

and 4 P. M.—to tenths. The zero of this gage is 16 feet below mean sea-level and 15.13 feet below Barge canal datum. The water-surface was affected by the remains of the old State dam until July 26, 1916, when the removal of the old structure was completed.

As the river is tidal at this point, changes of water-surface at ordinary stages of the river are due more to tides than to discharge.

Daily elevation of water-surface (B. C. datum) of HUDSON RIVER BELOW FEDERAL DAM AT TROY, for the year ended June 30, 1917. J. B. Mackey and C. G. Boyd, Observers

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	3.20	2.85	2.50	.....	.....	8.09	2.5	4.0	8.35	9.55	6.3	6.65
2	4.15	3.40	2.70	.....	.....	7.35	2.8	3.7	6.4	13.35	6.5	6.25
3	4.20	3.70	2.60	.....	.....	6.15	3.6	3.0	5.65	14.85	7.5	5.05
4	5.95	2.65	3.00	.....	.....	5.55	4.5	2.55	5.05	14.0	6.75	4.8
5	5.00	2.45	2.45	.....	.....	5.71	4.7	2.8	5.7	14.6	7.4	4.95
6	4.85	2.50	1.30	.....	.....	5.60	4.55	1.75	5.0	12.0	8.65	4.7
7	4.05	1.60	1.40	.....	.....	4.79	4.65	2.75	4.4	12.3	8.4	4.85
8	3.15	1.45	2.70	.....	.....	5.14	4.50	3.65	4.6	11.4	7.8	5.85
9	2.65	2.30	3.00	.....	.....	6.04	4.65	3.9	4.7	9.8	7.3	6.85
10	2.70	2.65	3.90	.....	.....	5.29	4.7	3.65	4.25	8.1	6.9	6.5
11	3.55	4.35	3.55	.....	.....	5.17	4.35	1.3	4.25	6.65	6.15	5.55
12	2.40	3.20	3.55	.....	.....	6.04	4.15	1.65	4.7	6.85	5.7	15.25
13	3.10	3.10	3.40	.....	.....	4.22	3.65	1.8	5.55	6.45	5.1	16.7
14	1.60	3.20	3.55	.....	.....	4.22	4.45	2.05	5.9	5.90	4.85	14.55
15	4.80	3.50	3.40	.....	.....	4.29	3.5	2.35	5.95	4.6	4.45	12.05
16	2.70	3.65	3.00	.....	.....	3.47	4.4	2.5	4.7	5.25	4.40	9.75
17	4.90	2.60	2.05	.....	.....	3.24	4.45	2.6	5.85	4.5	4.9	8.4
18	4.50	2.35	2.95	.....	.....	3.72	4.05	3.7	5.85	5.15	4.75	8.2
19	3.45	2.85	1.65	.....	.....	3.00	3.9	3.05	4.7	5.35	5.1	6.5
20	2.85	2.35	1.80	.....	.....	3.10	4.05	3.6	5.0	6.0	4.6	5.95
21	2.85	1.60	2.20	.....	.....	2.89	4.4	3.7	5.0	10.20	4.75	6.3
22	1.20	1.60	2.45	.....	.....	4.07	4.8	3.95	5.4	11.7	4.45	5.65
23	1.20	1.50	3.40	.....	.....	2.80	3.4	3.45	6.45	12.0	4.65	4.7
24	2.70	1.50	3.75	.....	.....	3.35	3.9	3.5	9.05	11.55	4.6	4.7
25	2.45	3.20	2.35	.....	.....	3.57	3.95	2.75	13.05	10.30	4.65	4.65
26	3.30	2.30	3.40	.....	.....	2.97	3.55	2.9	13.45	9.15	4.15	4.45
27	2.80	3.60	3.75	.....	.....	3.80	3.55	7.6	15.1	7.90	4.8	4.55
28	3.85	3.10	3.85	.....	.....	4.15	2.45	8.75	17.25	7.0	4.2	3.6
29	3.50	2.30	3.80	.....	.....	3.39	3.15	.....	14.6	6.7	4.45	3.3
30	4.25	2.60	2.55	.....	.....	2.82	3.2	.....	12.15	6.05	6.65	5.6
31	3.15	2.85	.....	.....	.....	2.62	3.1	.....	10.20	.....	6.55	.....

NOTE.—State dam entirely removed July 26, 1916. October 1 to November 30, inclusive, record not available.

HUDSON RIVER AT ALBANY

The following tables, furnished by the United States Engineer Office, Albany, N. Y., through the courtesy of Major David A. Watt, Engineers Reserve Corps, U. S. Army, give the elevations of the lower high and lower low tide recorded daily by the automatic tide gage at foot of State street, Albany, during the year ended June 30, 1917.

The elevations are referred to an assumed plane of lowest low water in the Hudson river at this locality, which is 2.0 feet below the mean sea-level at Sandy Hook, N. J., or 15.863 feet below the elevation of "Greenbush" bench-mark, as published in the Annual Report of the U. S. Coast and Geodetic Survey for 1903, Appendix No. 3.

The plane of mean low tide at Albany, as determined from the mean of observations taken July 3 to November 17, 1876, was about 13.40 feet below the Greenbush bench-mark and, as determined by observations taken during the same period in 1908 and 1909, was about 13.80 feet below that bench-mark.

To reduce elevations in the tables to Barge canal datum, subtract 1.13 feet.

Daily record of elevation of LOWER HIGH TIDE IN HUDSON RIVER AT ALBANY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	5.11	5.00	5.00	4.13	5.58	7.12	b 4.59	4.61	6.57	7.97	6.16	6.22
2.....	5.73	5.58	4.91	4.91	5.12	b 6.99	4.50	4.55	b 5.95	8.90	6.73	5.75
3.....	5.77	5.89	4.35	4.88	b 4.84	5.84	4.30	3.96	5.35	11.42	6.40	5.75
4.....	5.31	5.53	4.66	4.65	4.47	6.26	5.56	3.88	5.14	11.20	6.36	5.22
5.....	5.57	5.36	4.69	b 4.52	5.25	6.25	4.96	4.16	5.03	10.62	7.07	6.10
6.....	5.31	4.89	b 4.65	4.92	5.74	6.36	5.12	2.65	4.48	10.14	7.45	5.55
7.....	5.60	4.62	5.13	4.73	5.57	4.70	4.78	3.59	4.41	9.74	7.48	6.35
8.....	5.31	b 4.70	a	5.43	5.62	5.18	5.01	4.86	5.05	8.67	7.10	7.01
9.....	b 4.62	4.66	4.30	5.33	5.36	6.86	5.35	5.05	5.21	7.58	6.98	6.85
10.....	5.12	5.12	5.23	5.39	5.34	5.31	5.56	3.00	4.91	5.90	5.92	6.82
11.....	5.13	5.56	5.75	5.26	5.12	5.26	5.32	3.01	5.10	5.87	5.27	7.26
12.....	5.13	5.40	5.96	5.10	4.46	6.12	4.17	3.37	5.38	6.70	5.74	b 11.80
13.....	4.93	5.09	5.70	5.70	4.75	4.23	4.20	3.78	b 6.12	5.99	5.59	13.39
14.....	5.19	5.26	5.40	4.30	5.01	4.40	5.42	3.88	6.80	5.73	6.09	11.85
15.....	6.31	5.57	5.79	4.65	4.78	5.10	4.16	4.18	6.00	b 6.26	b 6.11	9.78
16.....	6.17	5.68	5.89	4.95	5.20	3.28	4.41	b 5.13	b 5.65	5.37	5.65	8.00
17.....	5.80	5.40	5.26	3.53	4.90	3.91	b 4.61	4.52	5.85	5.15	5.88	6.87
18.....	5.84	5.35	5.18	3.81	4.85	b 4.28	3.64	4.66	6.23	5.77	6.03	7.00
19.....	5.84	5.01	3.95	b 5.14	b 5.16	4.42	3.96	4.36	4.64	5.86	5.92	6.28
20.....	5.71	4.81	b 4.72	5.20	4.80	4.00	3.74	4.97	4.54	6.77	5.58	6.39
21.....	5.30	b 4.82	4.65	4.99	4.36	4.55	4.86	5.11	5.95	8.17	5.73	6.37
22.....	b 4.74	4.27	4.99	4.76	4.77	4.77	5.13	4.91	6.00	9.32	5.96	6.08
23.....	4.69	4.83	5.62	5.15	4.88	3.26	3.83	5.05	5.63	9.58	6.13	5.79
24.....	4.61	4.47	4.85	5.64	6.17	3.74	4.89	5.20	8.25	9.12	6.21	5.72
25.....	4.55	4.83	4.66	5.25	5.22	4.66	5.07	4.44	10.34	8.12	4.94	5.81
26.....	5.12	4.97	5.01	5.60	5.42	3.68	4.90	b 5.05	11.11	7.46	5.13	5.75
27.....	4.52	4.46	5.24	5.04	5.95	4.80	4.55	5.44	12.54	6.78	4.25	5.74
28.....	5.15	4.79	5.51	5.34	5.26	5.54	4.90	7.43	13.36	5.56	5.63	b 5.20
29.....	5.51	5.22	5.82	4.94	5.44	4.44	5.09	.....	10.51	b 5.85	b 6.12	5.46
30.....	5.12	5.90	4.25	5.26	6.54	4.44	4.57	.....	8.94	6.49	6.26	5.53
31.....	4.99	5.28	.....	5.99	.....	4.05	b 5.01	.....	b 8.51	.....	6.05	.....

a No record.

b One tide recorded.

Daily record of elevation of LOWER LOW TIDE IN HUDSON RIVER AT ALBANY, for
the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2.34	1.58	1.99	1.36	2.35	5.67	b 2.88	3.44	5.54	7.34	4.69	4.11
2.....	2.48	2.07	1.54	1.94	2.13	b 4.89	2.59	3.10	b 5.15	9.72	5.18	3.95
3.....	3.13	2.60	1.32	1.94	b 1.51	4.27	2.74	2.32	4.64	11.57	5.30	3.26
4.....	3.40	2.10	1.99	1.74	1.42	4.44	3.69	1.88	4.03	10.64	4.95	3.32
5.....	2.77	2.08	1.69	b 1.64	2.11	4.46	3.45	2.01	4.36	10.16	5.37	3.29
6.....	2.81	1.41	b 1.86	1.84	2.92	4.14	3.54	1.14	3.54	9.50	6.40	3.15
7.....	2.36	1.75	2.29	1.64	2.64	3.27	3.61	2.09	3.43	9.29	6.05	3.65
8.....	2.05	b 1.57	2.09	2.08	2.61	3.62	3.76	3.02	3.96	7.54	5.44	4.92
9.....	b 1.66	1.80	1.12	1.62	2.44	4.49	4.16	3.30	4.09	6.40	5.32	4.49
10.....	2.24	1.99	1.75	0.93	1.97	3.76	4.21	1.31	3.88	4.82	4.16	4.70
11.....	2.09	2.18	2.19	1.97	1.96	3.86	3.42	1.45	a	4.74	3.93	5.00
12.....	1.92	1.81	2.32	1.77	1.57	4.01	2.83	1.77	4.62	5.11	4.08	b 12.93
13.....	1.90	1.52	2.21	2.61	2.23	2.37	2.87	2.11	b 6.04	4.55	3.88	13.08
14.....	1.93	1.76	1.98	0.70	2.27	2.66	3.14	2.20	6.09	4.23	3.70	10.87
15.....	2.91	1.87	2.74	2.25	2.77	3.03	3.08	2.44	5.06	b 3.44	b 3.01	8.79
16.....	2.61	2.08	2.23	1.97	2.14	0.90	3.46	b 2.99	b 5.10	3.68	3.16	6.71
17.....	2.45	1.82	2.04	0.71	2.36	2.58	b 3.53	2.42	5.43	3.24	3.44	5.81
18.....	2.37	1.90	2.29	1.50	2.37	b 3.01	2.89	2.80	5.01	3.45	3.13	5.18
19.....	2.32	1.82	1.61	b 3.44	b 2.29	2.71	2.91	2.38	3.71	3.51	3.37	4.27
20.....	2.13	1.76	b 2.33	2.58	1.97	2.51	2.83	3.08	3.95	4.78	2.53	4.34
21.....	2.00	b 2.03	2.11	2.66	1.56	2.79	3.27	2.80	4.27	7.57	3.12	4.40
22.....	b 1.71	1.79	2.34	2.64	2.05	2.95	3.61	2.88	4.25	8.90	3.15	3.88
23.....	1.51	2.28	2.65	2.58	1.82	1.53	2.24	2.89	4.93	9.25	3.31	3.32
24.....	1.91	2.01	1.75	2.79	2.97	2.25	3.01	2.98	6.37	8.38	3.45	3.15
25.....	2.08	2.10	1.61	3.30	3.83	2.50	3.12	2.45	10.14	7.13	3.04	3.43
26.....	2.38	2.20	2.12	2.11	3.58	2.87	2.91	b 3.21	10.55	6.09	2.76	3.07
27.....	2.03	2.30	2.25	2.07	3.57	3.17	2.71	5.38	12.19	5.47	3.27	3.06
28.....	2.38	1.59	2.47	1.95	3.02	3.44	2.78	7.10	13.04	4.44	3.21	b 2.73
29.....	2.61	1.94	2.59	1.97	3.21	2.48	3.13	.....	9.90	b 4.24	b 3.62	2.96
30.....	2.01	2.18	1.12	2.25	5.04	2.31	2.83	.....	8.16	4.78	4.91	4.18
31.....	1.95	1.92	.....	2.12	.....	2.23	b 3.23	.....	b 7.59	.....	4.85	.....

a No record.

b One tide recorded.

DIFFERENCE IN TIME AND RANGE OF TIDES ON HUDSON RIVER

The following table, prepared by the Corps of Engineers, U. S. A., shows the difference in time between the occurrence of high or low tide at Albany and at various localities on the Hudson river from Troy to New York, also the amounts of mean tidal range at the same localities.

To obtain the actual time of any desired high or low tide at a given locality apply the correction indicated in the table to the time of the same tide at Albany.

LOCALITY	DISTANCE FROM ALBANY	DIFFER- ENCE	HIGH WATER		LOW WATER		MEAN RANGE
	Miles	+ or -	Hours	Minutes	Hours	Minutes	Feet
Troy (Congress St.).....	6½	Add	0	23	0	36	2.92
Albany.....	0						2.88
Castleton.....	8½	Subtract	0	56	1	00	2.78
New Baltimore.....	15	Subtract	1	45	2	00	3.21
Stuyvesant.....	19	Subtract	2	08	2	29	3.50
Coxsackie.....	21	Subtract	2	35	2	57	3.66
Hudson.....	28	Subtract	3	00	3	55	4.08
Catskill.....	33	Subtract	3	16	3	56	4.20
Germantown.....	39	Subtract	3	48	4	26	4.10
Saugerties-Tivoli.....	44	Subtract	4	10	4	50	4.00
Rondout-Rhinebeck.....	56	Subtract	4	26	5	10	3.90
Poughkeepsie.....	70	Subtract	4	57	5	47	3.10
New York (Governor's Island).....	145	Subtract	9	50	11	02	4.40

CEDAR RIVER

CEDAR RIVER NEAR INDIAN LAKE

Location.—At the steel highway bridge about 2 miles west of Indian Lake village, Hamilton county, 8 miles by river above Rock river, 10 miles by river below Wakely dam and about 12 miles above the mouth of Cedar river.

Drainage area.—85 square miles. (Measured on U. S. Geological Survey topographic maps.)

Records available.—July 15, 1911, to June 30, 1917.

Gage.—Chain, at downstream side of bridge. Chauncy Hill, observer.

Discharge measurements.—Made from bridge or by wading.

Channel and control.—Gravel and large boulders; fairly permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 18.7 feet about midnight, June 11, from water-marks observed by Mr. F. E. Wood; discharge, not computed. Minimum stage, 2.2 feet at 7 p. m., September 7; discharge, 8 second-feet.

1911–1917: Maximum stage recorded, 18.7 feet about midnight, June 11, 1917; discharge, not computed. Minimum stage recorded, 2.10 feet at 4 p. m., September 27, 1915; discharge, approximately 5 second-feet.

Ice.—Stage-discharge relation affected by ice.

Regulation.—Cedar river flow is controlled by a lumberman's dam (Wakely dam), which is used to make flood waves during the spring for log-driving.

Accuracy.—Stage-discharge relation practically permanent between dates of shift; affected by ice from December to March. Rating curve used from July 1 to June 11, well defined between 15 and 600 second-feet. Rating curve used, June 12 to 30, not well defined. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good except during long-driving operations in the spring.

Coöperation.—Station established and maintained by United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of CEDAR RIVER NEAR INDIAN LAKE, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 20 a.....	C. C. Covert.....	2.90	54.3
Oct. 19.....	C. C. Covert.....	2.79	40.7
Oct. 20.....	C. C. Covert.....	3.39	112
Jan. 25 b.....	A. H. Davison.....	4.76	67
Feb. 20 b.....	E. D. Burchard.....	4.35	55.3
Mar. 18 b.....	A. H. Davison.....	5.12	51.9
April 15.....	E. D. Burchard.....	3.60	144
April 15.....	E. D. Burchard.....	3.60	145
May 7.....	E. D. Burchard.....	4.57	360
June 21.....	O. W. Hartwell.....	4.29	262
June 21.....	O. W. Hartwell.....	4.26	270

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily gage height, in feet, of CEDAR RIVER NEAR INDIAN LAKE, for the year ended
June 30, 1917. Chauncy Hill, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.2	2.98	2.68	2.7	2.85	5.6				6.6	5.8	4.45
2.....	3.3	2.95	2.62	3.0	2.80	5.4				9.2	6.0	4.7
3.....	3.4	2.92	2.62	3.6	2.92	5.4				10.6	5.6	4.8
4.....	3.3	3.0	2.60	3.5	2.90	4.2				9.1	4.8	4.6
5.....	3.2	3.15	2.52	3.05	3.0	4.35				8.1	4.0	4.7
6.....	3.2	2.98	2.40	3.0	3.0	4.5				7.9	5.0	4.8
7.....	3.2	2.90	2.25	3.1	2.92	4.3				6.6	5.5	4.6
8.....	3.3	2.98	2.45	2.92	2.90	4.2				6.1	6.0	4.8
9.....	3.2	3.3	2.55	3.1	3.0	4.25				6.0	4.9	4.9
10.....	3.0	3.15	2.55	3.05	2.95	5.4				5.8	5.1	4.2
11.....	3.05	3.1	2.55	2.88	6.0	5.3				5.4	5.0	7.8
12.....	3.05	3.1	2.55	2.55	5.5	5.2				5.6	5.0	13.1
13.....	3.6	3.1	2.55	2.55	5.5	5.1				5.7	5.0	8.2
14.....	4.3	3.0	3.1	2.52	4.8	4.9				3.7	5.4	0.0
15.....	4.3	3.0	3.1	2.62	5.0	6.4				3.5	6.6	5.8
16.....	3.8	2.92	3.0	2.60	5.0	6.4				3.4	6.1	5.4
17.....	3.4	2.92	2.92	2.70	4.9					3.55	4.0	5.0
18.....	3.3	2.88	2.88	2.62	3.6					3.9	4.6	4.35
19.....	3.3	2.80	2.75	2.80	3.5					5.0	10.1	3.8
20.....	2.82	2.88	2.75	3.2	3.4					8.0	5.3	4.8
21.....	2.82	2.82	2.70	3.4	3.3					8.0	7.6	4.05
22.....	3.1	2.85	2.78	3.2	3.2					5.5	3.85	5.7
23.....	3.55	2.92	2.78	3.1	3.3					6.0	7.0	4.3
24.....	4.35	2.92	2.78	3.0	6.6					6.1	3.8	5.1
25.....	4.2	2.92	2.70	3.0	6.5					6.3	7.0	4.6
26.....	3.2	2.92	2.60	3.15	5.3					6.5	3.75	4.3
27.....	3.15	2.82	2.65	3.2	5.0					6.1	4.05	4.1
28.....	3.05	2.82	2.60	3.1	5.0					5.8	8.6	3.95
29.....	3.05	2.72	2.80	2.90	5.1					4.9	4.6	4.6
30.....	3.1	2.72	2.70	2.82	6.6					6.5	4.6	5.15
31.....	3.0	2.72		2.78							4.05	

NOTE.—Stage-discharge relation affected by ice, December 1 to March 31.

Daily discharge, in second-feet, of CEDAR RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	86	60	33	34	47					1,040	738	332
2	100	57	28	62	42					2,210	810	396
3	114	54	28	146	54					2,900	698	422
4	100	62	27	130	52					2,160	422	870
5	86	80	21	88	63					1,690	226	396
6	86	60	15	62	62					1,600	478	422
7	83	52	10	74	54					1,040	634	870
8	100	60	18	54	52					848	810	422
9	86	100	24	74	62					810	460	450
10	62	80	24	68	57					738	508	272
11	68	74	24	50	810					602	478	1,550
12	68	74	24	24	634					668	478	4,250
13	184	74	24	24	684					702	478	1,730
14	296	62	74	21	422					184	602	810
15	296	62	74	28	478					190	688	738
16	194	54	62	27	478					114	848	602
17	114	54	54	34	450					138	226	478
18	100	50	50	28	146					204	370	808
19	100	42	38	42	130					478	2,650	184
20	44	50	38	86	114					1,640	570	422
21	44	44	34	114	100					1,640	1,460	237
22	74	47	40	86	86					634	194	702
23	136	54	40	74	100					810	1,210	296
24	308	54	40	62	1,040					848	184	508
25	272	54	34	62	1,000					924	1,210	344
26	86	54	27	80	570					1,000	174	296
27	80	44	30	86	478					848	237	248
28	68	44	27	74	478					738	1,920	215
29	68	36	42	52	508					460	344	370
30	74	36	34	44	1,040					1,000	344	523
31	62	36		40							237	
Mean...	117	56.9	34.6	61.6	841					969	665	622

NOTE.— Discharge, December to March, inclusive, not computed, because of ice. Daily discharge, April to June, inclusive, uncertain, because of large fluctuation due to logging operations.

Monthly discharge of CEDAR RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

[Drainage area, 85 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July	308	44	117	1.38	1.59
August	100	36	56.9	0.670	0.77
September	74	10	34.6	0.407	0.45
October	146	21	61.6	0.725	0.84
November	1,040	42	341	4.01	4.47
December					
January					
February					
March					
April	2,900	114	959	11.23	12.59
May	2,650	174	665	8.06	9.29
June	4,250	184	622	7.32	8.17

NOTE.— Figures in the above table are not corrected for storage in Cedar river flow.

INDIAN RIVER

INDIAN LAKE RESERVOIR AT INDIAN LAKE

Location.—At the masonry storage dam at the outlet of Indian lake, about 2 miles south of Indian Lake village, Hamilton county, and about $7\frac{1}{2}$ miles above the confluence of Indian and Hudson rivers.

Drainage area.—131 square miles, including about 9.3 square miles of water-surface of Indian lake at the elevation of crest of spillway. (Measured on U. S. Geological Survey topographic maps.)

Records available.—Records of stage and gate openings, July, 1900, to June 30, 1917.

Gages.—Elevation of water-surface in reservoir is determined by chain gage on the crest of the dam near the gate-house. Gage installed November 17, 1911, to replace staff gage previously maintained at the same point. Datum unchanged. Widths of sluice-gate openings determined by gage scales at sides of gate-stems inside gate-house. Lester Sevarie, observer.

Discharge measurements.—Made from cable or by wading about 100 feet below the water-stage recorder.

Discharge ratings.—The records include the discharge through one or both of two 5-foot circular sluice-gates, when open, ratings for which have been determined by current-meter measurements; the discharge over a spillway, consisting of five sections with a total effective length of 88.7 feet, the rating for which has been prepared by the use of coefficients derived from experiments made in the hydraulic laboratory of Cornell University on a full size model 6.58 feet in length,* and the discharge through two log-ways when open.

From July 1 to August 27, the gage height was observed on Indian river, near Indian Lake, twice weekly. The daily discharge was computed from these gage heights on days of observation and for other days was computed from records and ratings at the dam.

Extremes of stage.—Current year: Maximum elevation of water-surface in reservoir, 37.55 feet, June 13. Minimum elevation, 8.7 feet, March 26.

* See Water-Supply Paper 200, pages 190-

1900-1917: Maximum elevation recorded, 38.8 feet, March 28, 1913. Minimum elevation, 2.0 feet, March 9 to 18, 1907, and January 3 to 17, 1910.

Regulation.—At ordinary stages the discharge is completely regulated by the operation of the sluice-gates. Water is held in storage until needed to supplement the flow of the upper Hudson during the low-water period. This storage capacity of about 4.7 billion cubic feet provides for a discharge of approximately 600 second-feet for a period of 90 days.

Accuracy.—Stage-discharge relation at meter station permanent; not affected by ice. Rating curve for meter station well defined between 15 and 1,250 second-feet. Gage read to half-tenths twice weekly. Results fairly good.

Coöperation.—Station maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Daily gage height, in feet, of INDIAN LAKE RESERVOIR AT INDIAN LAKE, for the year ended June 30, 1917. Lester Savarie, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	34.4	33.65	24.65	17.05	13.95	16.3	18.55	17.55	13.4	10.3	27.2	35.1
2.....	34.35	33.5	24.3	17.0	13.8	16.7	18.5	17.4	13.2	11.0	27.8	35.15
3.....	34.5	33.35	23.9	16.7	13.7	17.05	18.4	17.3	13.0	12.0	28.3	35.2
4.....	34.45	33.15	23.5	16.4	13.6	17.25	18.2	17.2	12.85	13.0	28.75	35.2
5.....	34.4	33.0	23.1	16.1	13.5	17.5	18.15	17.1	12.7	13.7	29.0	34.8
6.....	34.4	32.8	22.8	15.8	13.4	15.9	18.3	17.0	12.5	14.35	29.3	34.55
7.....	34.35	32.6	22.4	15.5	13.3	18.15	18.4	16.9	12.3	14.75	29.6	34.5
8.....	34.3	32.4	22.05	15.2	13.2	18.4	18.6	16.8	12.1	15.05	29.9	34.65
9.....	34.25	32.15	21.7	14.95	13.15	18.85	18.5	16.7	11.9	15.4	30.2	34.7
10.....	34.2	31.9	21.45	14.6	13.1	18.95	18.45	16.75	11.7	15.7	30.55	34.8
11.....	34.15	31.75	21.0	14.35	13.05	19.05	18.4	16.65	11.5	15.9	30.8	35.4
12.....	34.1	31.45	20.65	14.05	13.0	19.2	18.35	16.6	11.3	16.05	31.1	37.4
13.....	34.35	31.15	20.3	13.8	12.95	19.3	18.2	16.5	11.1	16.2	31.3	37.55
14.....	34.45	30.9	19.9	13.65	12.9	19.4	18.1	16.35	10.9	16.35	31.6	37.2
15.....	34.45	30.65	19.8	13.55	12.85	19.45	18.0	16.2	10.7	16.5	31.9	36.55
16.....	34.4	30.4	19.5	13.45	12.8	19.55	17.85	16.0	10.5	16.7	32.2	36.3
17.....	34.35	30.25	19.3	13.35	12.75	19.65	17.7	15.8	10.3	16.85	32.4	36.0
18.....	34.3	29.95	19.35	13.25	12.75	19.75	17.55	15.6	10.1	17.1	32.55	35.6
19.....	34.25	29.6	19.1	13.2	12.8	19.6	17.4	15.4	9.9	17.5	32.8	35.2
20.....	34.2	29.3	18.7	13.5	12.9	19.5	17.35	15.2	9.7	18.65	33.0	34.85
21.....	34.15	38.9	18.45	13.75	12.9	19.4	17.3	15.0	9.5	20.0	33.2	34.4
22.....	34.1	38.5	17.9	14.05	12.85	19.3	17.3	14.9	9.3	21.45	33.5	34.3
23.....	34.15	28.1	17.8	14.25	13.0	19.2	17.35	14.6	9.1	22.65	33.7	33.9
24.....	34.2	27.5	17.8	14.35	13.4	19.1	17.4	14.4	8.9	23.5	33.9	33.85
25.....	34.25	27.3	17.5	14.5	13.95	19.0	17.55	14.2	8.7	24.25	34.15	33.8
26.....	34.2	26.8	17.4	14.6	14.2	18.9	17.5	14.0	8.9	24.85	34.3	33.8
27.....	34.15	26.45	17.3	14.65	14.5	18.8	17.65	13.8	9.2	25.35	34.4	33.8
28.....	34.1	26.05	17.2	14.6	14.7	18.75	17.6	13.6	9.4	25.7	34.45	33.6
29.....	34.05	25.7	17.1	14.45	14.85	18.7	17.75	.....	9.6	26.15	34.6	33.9
30.....	33.9	25.35	17.05	14.25	15.55	18.65	17.75	.....	9.9	26.6	34.9	34.35
31.....	33.8	25.0	.....	14.1	.....	18.6	17.7	.....	10.1	.....	35.05	.....

Gate openings, in inches, at INDIAN LAKE RESERVOIR AT INDIAN LAKE, for the year ended June 30, 1917

DATE	Sluice-gate A open	Sluice-gate B open
	Inches	Inches
July 29, 3:00 P. M., to August 4, 1 P. M., inclusive	30	
August 4, 1 P. M., to August 12, 3 P. M., inclusive	60	
August 12, 3 P. M., to September 16, 7 P. M., inclusive		60
August 17, 4 P. M., to August 20, 1 P. M., inclusive	20	
August 20, 1 P. M., to August 24, 6 P. M., inclusive	60	
August 24, 6 P. M., to August 31, 7 P. M., inclusive	30	
August 31, 7 P. M., to September 10, 7 A. M., inclusive	40	
September 10, 7 A. M., to September 16, 7 P. M., inclusive	60	
September 16, 4 P. M., to October 19, 5 P. M., inclusive	60	
September 18, 5 P. M., to September 25, 4 P. M., inclusive		60
October 2, 5 P. M., to October 14, 7 A. M., inclusive		60
October 17, 6 P. M., to October 19, 3 P. M., inclusive		60
October 28, 1 P. M., to November 6, 6 P. M., inclusive		60
November 6, 6 P. M., to November 18, 6 P. M., inclusive		30
November 21, 1 P. M., to November 23, 6 A. M., inclusive	60	
November 23, 6 A. M., to November 26, 2 P. M., inclusive		60
December 19, 4 P. M., to January 5, 11 A. M., inclusive	60	
January 2, 6 P. M., to January 4, 1 P. M., inclusive		30
January 8, 7 P. M., to March 27, 9 A. M., inclusive	60	
January 31, 6 P. M., to February 13, 6 P. M., inclusive		30
February 13, 6 P. M., to February 14, 6 P. M., inclusive		48
February 14, 6 P. M., to March 28, 3 P. M., inclusive		54
June 28, 6 A. M., to 5 P. M., inclusive	60	

Monthly discharge of INDIAN LAKE RESERVOIR AT INDIAN LAKE, for the year ended June 30, 1917

[Drainage area, 132 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July	402	130	202	1.53	1.76
August	810	369	665	5.04	5.81

NOTE.—For later records see Indian river near Indian Lake.

INDIAN RIVER NEAR INDIAN LAKE

Location.—About $\frac{3}{4}$ mile below the State dam at the outlet of Indian lake, about 2 miles south of Indian Lake village, Hamilton county, 1 mile above the mouth of Big brook and 8 miles above the confluence of Indian and Hudson rivers.

Drainage area.—132 square miles. (Measured on U. S. Geological Survey topographic maps.)

Records available.—July 1, 1912, to June 30, 1914, when station was discontinued; also miscellaneous measurements in 1911. Station reestablished on basis of weekly readings in June, 1915. Records published in connection with Indian lake reservoir at Indian Lake and used to check the record at the dam. August 30, 1916, water-stage recorder installed.

Gage.—Gurley repeating hydrograph water-stage recorder in standard wooden shelter on the right bank about $\frac{3}{4}$ mile below the dam. The datum is the same as that for the staff gage previously used. The staff gage is still in existence for checking. Lester Sevarie, observer.

Discharge measurements.—Made from a cable or by wading at the head of the rapids about 150 feet below the gage.

Channel and control.—The gage is at the side of the pool about 500 feet wide, called the "lower froth pool," control being the reef at the outlet of this pool. This reef consists of coarse gravel and is permanent.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 6.38 feet at 10:30 A. M., June 19; discharge, 2,410 second-feet. Minimum discharge, practically zero during periods when gates were closed and there was no flow from spillway.

1900-1917: Maximum daily discharge, 4,730 second-feet, March 28, 1913.

Winter flow.—Discharge relation not affected by ice.

Regulation.—Discharge at this station is regulated by the operation of gates at the dam.

Accuracy.—Rating curve is well defined and discharge estimates are very good.

Coöperation.—Station maintained by United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of INDIAN RIVER NEAR INDIAN LAKE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
June 21.....	O. W. Hartwell.....	Feet 4.76	Sec.-ft. 1,400

Daily gage height, in feet, of INDIAN RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	.....	.....	3.48	1.83	2.36	0.34	1.92	2.65	2.6	0.28	0.30	2.06
2.....	1.78	2.35	3.52	.....	2.36	.28	.....	2.65	2.6	.48	.34	2.10
3.....	.....	.....	3.50	3.05	2.36	.25	2.7	2.65	2.6	.50	.34	2.12
4.....	.....	.....	3.5	3.05	.....	.22	.....	2.65	2.55	.38	.36	2.08
5.....	1.74	.....	3.45	3.05	2.36	.25	.....	2.6	2.55	.34	.37	.....
6.....	.....	3.05	3.45	3.05	.....	.28	.32	2.6	2.55	.19	.40	.....
7.....	.....	.....	3.45	3.0	.....	.24	.28	2.6	.....	.27	.29	2.19
8.....	.....	.....	3.4	3.0	.....	.22	.....	2.6	.....	.23	.26	2.12
9.....	1.71	3.00	3.35	3.0	1.82	.23	1.90	2.6	.....	.22	.26	2.18
10.....	.....	.....	3.35	2.95	1.81	.25	1.90	2.55	2.38	.20	.27	2.23
11.....	.....	.....	3.35	2.95	1.81	.23	1.89	2.55	.....	.17	.28	.....
12.....	1.68	.....	3.35	2.9	1.81	.21	1.89	2.55	.....	.19	.30	.....
13.....	.....	2.98	3.3	2.85	1.81	.20	1.88	.....	.....	.18	.31	.....
14.....	.....	.....	3.3	.....	1.81	.20	1.88	2.85	.....	.18	.32	.....
15.....	.....	.....	3.3	1.61	1.81	.20	1.87	2.85	.....	.17	.33	.....
16.....	1.74	2.95	3.3	1.62	1.82	.19	1.87	2.8	.....	.17	.35	4.8
17.....	.....	.....	.....	1.60	1.82	.19	1.86	2.8	2.30	.....	.37	4.6
18.....	.....	.....	.....	.....	.....	.....	1.86	2.8	2.24	.28	.40	.....
19.....	1.66	.....	.....	.....	.27	1.98	1.85	2.75	2.22	.32	.42	.....
20.....	.....	3.02	3.25	.35	.17	1.98	1.85	2.75	2.20	.....	.41	.....
21.....	.....	.....	3.2	.31	.....	1.98	1.84	2.7	2.20	.40	.40	.....
22.....	.....	.....	3.2	.23	1.50	1.98	1.84	2.7	.....	.34	.....	.....
23.....	1.58	3.52	3.2	.19	.....	1.99	1.83	2.7	.....	.....	.....	.....
24.....	.....	.....	3.15	.17	2.35	1.97	1.83	2.7	2.16	.....	.....	2.8
25.....	.....	.....	.....	.17	2.37	1.96	1.83	2.65	2.16	.24	1.09	.....
26.....	1.54	.....	1.88	.17	.....	1.96	1.85	2.65	.....	.22	1.28	1.91
27.....	.....	3.45	1.88	.17	.30	1.96	1.84	2.65	.....	.22	1.42	1.80
28.....	.....	.....	1.87	.....	.23	.....	1.84	2.6	.50	.22	.....	.....
29.....	.....	.....	1.86	2.37	.24	.....	1.83	.....	.37	.23	.....	1.80
30.....	2.45	3.40	1.84	2.37	.44	.....	1.83	.....	.23	.26	1.84	2.25
31.....	.....	3.43	.....	2.36	.....	1.92	.....	.....	.22	.....	2.00	.....

Daily discharge, in second-feet, of INDIAN RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....			810	220	372	7	242	471	453	4	5	281
2.....	212	369	810	286	372	4	296	471	453	14	7	292
3.....			810	623	372	4	489	471	453	15	7	298
4.....			810	623	326	3	375	471	436	8	7	286
5.....	200		788	623	372	4	142	453	436	7	8	1,320
6.....		603	788	623	338	4	6	453	436	5	9	691
7.....			788	603	211	3	4	453	422	4	5	319
8.....			767	603	213	3	30	453	408	3	4	298
9.....	189	603	746	603	217	3	237	453	394	3	4	316
10.....			746	584	214	4	237	436	379	2	4	331
11.....			746	584	214	3	234	436	375	2	4	468
12.....	189		746	584	214	2	234	436	371	2	5	1,100
13.....		603	725	545	214	2	232	443	367	2	5	1,610
14.....			725	299	214	2	232	545	363	2	6	1,880
15.....			725	170	214	2	230	545	359	2	6	1,800
16.....	200	603	725	172	217	2	230	526	356	2	7	1,430
17.....			338	168	217	2	227	526	353	2	8	1,520
18.....			53	409	147	69	227	526	334	4	9	1,180
19.....	178		607	392	4	259	224	508	325	6	10	1,230
20.....		603	704	7	2	259	224	508	322	12	10	1,360
21.....			684	5	53	259	222	489	322	9	9	1,220
22.....			684	3	148	259	222	489	318	7	23	796
23.....	168	810	684	2	277	261	220	489	314	147	267	997
24.....			664	2	369	256	220	489	310	5	266	525
25.....			578	2	375	253	220	471	310	3	79	369
26.....	158		232	2	225	253	224	471	269	3	108	240
27.....		767	232	2	5	253	222	471	63	3	133	212
28.....			230	164	3	250	222	453	15	3	352	424
29.....			227	375	3	247	220		8	3	295	212
30.....	402	788	222	375	11	244	220		3	4	222	348
31.....		788		372		242	261		3		264	
Mean...			613	323	204	110	220	479	314	9.60	69.3	768

NOTE.—Records not affected by ice.

Monthly discharge of INDIAN RIVER NEAR INDIAN LAKE, for the year ended June 30, 1917

[Drainage area, 132 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
September.....	810	53	613	4.64	5.18
October.....	623	2	323	2.45	2.82
November.....	375	2	204	1.55	1.73
December.....	261	2	110	0.833	0.96
January.....	489	4	220	1.67	1.92
February.....	545	436	479	3.63	3.78
March.....	453	3	314	2.38	2.74
April.....	147	2	9.60	0.072	0.06
May.....	352	4	69.3	0.525	0.61
June.....	1,880	212	768	5.82	6.49
The year.....	1,880	2	330	2.50	33.88

NOTE.—The figures in the above table indicate the flow of Indian river as regulated by the sluice-gates and logways at Indian lake dam.

SCHROON RIVER

DESCRIPTION

Schroon river rises in Essex county, along the southern slopes of the highest mountains in the Adirondack group, flows in a general southerly direction for about 45 miles through Essex and Warren counties and joins the Hudson near Thurman. Its total drainage area is 550 square miles. Its headwaters reach an elevation of about 2,000 feet above mean tide; its mouth is at an elevation of about 600 feet.

Its basin is largely forested and contains considerable wild land and numerous lakes and ponds. The most important of these is Schroon lake, through which the river flows, which has a water-surface area of about 6.3 square miles. The only power-plants are at Warrensburg.

SCHROON RIVER AT RIVERBANK

Location.—At the steel highway bridge near Riverbank post-office, Warren county, near Tumblehead falls, about 9 miles below Schroon lake and about 9 miles above Warrensburg.

Drainage area.—534 square miles.

Records available.—September 2, 1907, to June 30, 1917.

Gage.—Chain, on upstream side of bridge; datum unchanged. Gage read by J. H. Roberts.

Discharge measurements.—Made from the upstream side of bridge.

Channel and control.—Gravel; occasionally shifting. Logs become lodged on the control for a portion of nearly every year.

Extremes of discharge.—Current year: Maximum stage recorded, 6.5 feet from 4 P. M., April 4, to 4 P. M., April 6; discharge, approximately 4,630 second-feet. Minimum stage recorded, 1.16 feet at 3 P. M., September 29 and 30; discharge, 89 second-feet.

1907–1917: Maximum stage recorded, 10.7 feet at 5 P. M., March 28, 1913; discharge, approximately 13,500 second-feet. Minimum stage recorded, 0.85 foot at 5 P. M., October 17, 1909; discharge, 28 second-feet.

Ice.—Stage-discharge relation affected by ice.

Regulation.—Flow affected by storage in Schroon and Brant lakes.

Accuracy.—Stage-discharge relation probably permanent during year. Affected by ice for a large portion of the period from December to March and by logs on the control for a short period in April, May and June. Rating curve well defined between 150 and 4,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table. Results good for periods when the stage-discharge relation is not affected by ice or logs. Results fairly good for other periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of SCHROON RIVER AT RIVERBANK, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 9.....	A. H. Davison.....	1.60	200
Jan. 8 <i>a</i>	E. D. Burchard.....	2.28	391
Jan. 29 <i>a</i>	A. H. Davison.....	2.60	450
Feb. 22 <i>b</i>	E. D. Burchard.....	2.35	273
Mar. 15 <i>b</i>	A. H. Davison.....	2.30	288
April 12 <i>a</i>	E. D. Burchard.....	4.94	2,400
April 12.....	W. A. James.....	4.91	2,270
April 28.....	E. D. Burchard.....	4.73	2,230
May 9.....	E. D. Burchard.....	3.73	1,370
May 9.....	E. D. Burchard.....	3.75	1,380
June 15.....	E. D. Burchard.....	5.91	3,680
June 15.....	E. D. Burchard.....	5.89	3,670

a Measurement made through partial ice cover. *b* Measurement made through complete ice cover.

Daily gage height, in feet, of SCHROON RIVER AT RIVERBANK, for the year ended
June 30, 1917. J. H. Roberts, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2.90	1.65	1.39	1.7	1.6	2.35	3.3	2.45	2.3	4.6	4.3	4.0
2.....	2.8	1.65	1.45	1.55	1.65	2.45	2.7	2.4	2.3	5.0	4.3	3.9
3.....	2.85	1.7	1.45	1.55	1.6	2.45	2.5	2.45	2.3	5.5	4.3	3.7
4.....	2.9	1.6	1.38	1.5	1.65	2.45	2.45	2.4	2.3	6.4	4.2	3.7
5.....	2.8	1.65	1.55	1.55	1.6	2.5	2.3	2.5	2.35	6.5	4.1	3.6
6.....	2.75	1.6	1.75	1.55	1.6	2.6	2.35	2.45	2.35	6.5	4.0	3.5
7.....	2.3	1.65	1.75	1.6	1.6	2.6	2.3	2.45	2.35	6.4	4.0	3.4
8.....	2.3	1.6	1.7	1.41	1.6	2.65	2.3	2.35	2.4	6.0	4.0	3.7
9.....	2.7	1.6	1.65	1.5	1.65	2.7	2.2	2.35	2.35	5.8	3.8	3.7
10.....	2.6	1.6	1.6	1.49	1.6	2.5	2.2	2.35	2.3	5.5	3.8	3.7
11.....	2.55	1.55	1.55	1.43	1.6	2.55	2.3	2.3	2.3	5.2	3.2	4.6
12.....	2.45	1.55	1.55	1.55	1.55	2.6	2.8	2.35	2.35	5.0	3.2	5.2
13.....	2.45	1.55	1.47	1.42	1.6	2.6	3.1	2.4	2.3	4.8	3.2	6.1
14.....	2.4	1.55	1.55	1.44	1.6	2.6	2.7	2.4	2.3	4.6	3.2	6.1
15.....	2.5	1.5	1.55	1.35	1.55	2.6	2.6	2.4	2.3	4.5	3.2	6.0
16.....	2.15	1.5	1.6	1.45	1.55	2.6	2.6	2.4	2.2	4.3	3.0	5.7
17.....	1.75	1.55	1.46	1.40	1.55	2.85	2.55	2.45	2.1	4.1	3.0	5.4
18.....	1.75	1.5	1.55	1.38	1.55	3.0	2.6	2.25	2.0	3.9	3.0	5.2
19.....	1.75	1.5	1.5	1.33	1.6	3.0	2.7	2.4	2.0	4.2	3.2	4.8
20.....	1.7	1.40	1.45	1.6	1.55	2.55	2.6	2.4	2.0	4.7	2.95	4.5
21.....	1.7	1.5	1.42	1.7	1.5	2.45	2.6	2.3	2.0	5.0	2.75	4.3
22.....	1.75	1.5	1.40	1.7	1.5	2.5	2.5	2.35	2.0	5.3	2.7	4.1
23.....	1.7	1.5	1.5	1.75	1.5	2.65	2.7	2.3	2.0	5.4	3.0	3.8
24.....	1.75	1.49	1.65	1.7	1.6	2.5	2.7	2.3	2.15	5.4	3.6	3.8
25.....	1.7	1.45	1.6	1.65	2.0	2.4	2.6	2.35	2.3	5.4	3.8	3.5
26.....	1.7	1.42	1.49	1.65	1.8	3.1	2.6	2.4	2.6	5.1	3.9	3.3
27.....	1.7	1.40	1.5	1.6	1.85	3.6	2.6	2.45	3.1	4.9	3.8	3.3
28.....	1.7	1.43	1.38	1.65	2.0	3.0	2.5	2.4	3.7	4.7	3.6	3.3
29.....	1.7	1.46	1.18	1.5	2.05	2.5	2.6	....	3.8	4.4	3.6	3.3
30.....	1.7	1.41	1.18	1.6	2.15	2.5	2.5	....	4.2	4.3	3.8	3.3
31.....	1.65	1.35	....	1.6	....	3.2	2.45	....	4.5	....	4.0	....

NOTE.—Stage discharge relation affected by ice, December 17, 1916, to March 22.

Daily discharge, in second-feet, of SCHROON RIVER AT RIVERBANK, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	745	218	142	232	201	466	380	400	260	2,150	1,840	1,500
2.....	690	218	158	188	216	512	380	380	280	2,600	1,840	1,400
3.....	718	232	158	188	201	512	380	380	280	3,210	1,840	1,200
4.....	745	201	140	172	216	512	380	380	280	4,470	1,740	1,200
5.....	690	216	281	186	201	535	420	400	280	4,630	1,640	1,100
6.....	662	201	248	186	201	585	420	380	280	4,630	1,550	1,100
7.....	447	216	248	172	201	585	400	380	280	4,200	1,550	1,000
8.....	447	201	232	148	201	610	400	340	280	3,800	1,550	1,200
9.....	635	201	216	172	216	635	380	340	280	3,400	1,370	1,200
10.....	585	201	172	169	201	535	380	320	280	3,000	1,370	1,200
11.....	560	186	186	153	201	560	380	300	280	2,800	920	2,000
12.....	512	186	186	186	186	585	380	280	280	2,400	920	2,600
13.....	512	186	164	160	201	585	420	300	280	2,200	920	4,020
14.....	490	186	186	156	201	585	500	280	280	2,000	920	4,020
15.....	535	172	186	132	186	585	460	280	280	1,900	920	3,880
16.....	388	172	201	158	186	585	440	300	280	1,700	800	3,470
17.....	248	186	161	145	186	550	440	300	280	1,500	800	3,080
18.....	248	172	186	140	186	550	460	240	260	1,300	800	2,840
19.....	248	172	172	128	201	500	500	280	260	1,600	920	2,370
20.....	232	146	158	201	186	500	460	300	280	2,000	772	2,040
21.....	232	172	150	232	172	500	460	260	300	2,400	662	1,840
22.....	248	172	145	232	172	550	420	280	320	2,800	635	1,640
23.....	232	172	172	248	172	600	500	260	333	3,000	800	1,370
24.....	248	169	216	232	201	550	480	260	388	3,000	1,100	1,370
25.....	232	158	201	216	333	500	460	280	447	3,000	1,300	1,130
26.....	232	150	169	216	264	460	460	280	585	2,600	1,400	990
27.....	232	145	172	201	281	500	460	300	860	2,400	1,300	990
28.....	232	153	140	216	333	500	420	300	1,280	2,200	1,200	990
29.....	232	161	93	172	351	480	460	....	1,370	1,840	1,200	990
30.....	232	145	93	201	388	420	420	....	1,740	1,840	1,200	990
31.....	216	132	....	201	....	400	400	....	2,040	....	1,500	....
Mean...	416	181	178	185	331	533	428	310	489	2,690	1,200	1,820

NOTE.—Discharge, December 17 to March 22, April 7 to 28 and May 24 to June 12, estimated, because of ice or logs on the control, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of SCHROON RIVER AT RIVERBANK, for the year ended June 30, 1917

[Drainage area, 534 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	745	216	416	0.779	0.90
August.....	232	132	181	0.339	0.39
September.....	281	93	178	0.333	0.37
October.....	248	128	185	0.346	0.40
November.....	388	172	331	0.620	0.69
December.....	635	400	533	0.998	1.15
January.....	500	360	428	0.802	0.92
February.....	400	240	310	0.581	0.60
March.....	2,040	260	489	0.916	1.08
April.....	4,630	1,300	2,690	5.04	5.62
May.....	1,840	635	1,200	2.25	2.59
June.....	4,020	990	1,820	3.41	3.80
The year.....	4,630	93	719	1.35	18.49

NOTE.—Figures in the above table are not corrected for storage in Schroon lake and other reservoirs.

SACANDAGA RIVER

DESCRIPTION

Sacandaga river is one of the larger tributaries of the upper Hudson. It drains extensive portions of the southeast slope of the Adirondack region as well as a portion of the plateau lying north of Mohawk river and south of the Adirondack mountains. The headwaters of the stream rise in the slopes surrounding Lake Pleasant, Sacandaga and Piseco lakes. It is formed by three principal branches, which unite in the southeastern part of Hamilton county. The west branch is the outlet at Piseco lake, the middle branch is the outlet of Sacandaga and Pleasant lakes, the east and principal branch issues from a series of small ponds and lakes in the southwestern part of Warren county. Sacandaga lake, the highest of the tributary lakes in the headwaters, is about 1,700 feet above mean tide. The east and middle branches unite a few miles north of Wells and are joined by the west branch a short distance below Wells. The river then flows southeasterly to a point about five miles below Northville. Above Northville the drainage basin is rugged and almost completely forest-covered. From Northville to Conklingville the stream winds through a sandy valley flanked by steep slopes. The width of this valley averages about one mile from Northampton to Conklingville. Above Northampton is an extensive flat lying at an elevation of about 740 feet. This flat is drained by Mayville, Vly and Hann's creeks and contains extensive swamp areas. From Northville to Conklingville, a distance along the general course of the stream of about 22 miles, there is very little fall. The elevation at Conklingville is about 720 feet. Sacandaga river enters Hudson river at Luzerne at elevation about 540 feet. Between Northville and the mouth of the river there is a fall of about 180 feet (chiefly concentrated in the five miles below Conklingville) entirely unutilized. There are, in fact, no power developments on the Sacandaga.

The drainage area of this river, about 1,060 square miles, is largely in forest. The mean precipitation is high, being about 49 inches, whereas the mean for the whole Hudson drainage area above Meehanicville is only about 43 inches.

SACANDAGA RIVER NEAR HOPE

Location.—About $1\frac{1}{2}$ miles below the junction of east and west branches, $3\frac{1}{4}$ miles above Hope post-office, Hamilton county, and 12 miles above Northville.

Drainage area.—494 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—September 15, 1911, to June 30, 1917.

Gage.—Staff, in two sections, the lower inclined, the upper vertical. Read by Melvin Willis.

Discharge measurements.—Made from a cable about 100 feet below the gage or by wading.

Channel and control.—Rocky; probably permanent.

Extremes of discharge.—Current year: Maximum stage recorded, 8.35 feet at 6:20 p. m., June 11; discharge, 15,200 second-feet. Minimum stage recorded, 1.43 feet several times during August and September; discharge, 59 second-feet.

1911–1917: Maximum stage recorded, 10.0 feet at 5:30 p. m., March 27, 1913; discharge, 24,800 second-feet. Minimum stage recorded, 1.17 feet at 7:55 a. m., September 30, 1913; discharge, 20 second-feet.

Ice.—Stage-discharge relation affected by ice.

Accuracy.—Stage-discharge relation permanent; affected by ice for a large portion of the period, December to March, inclusive. Rating curve well defined between 60 and 10,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good for periods when the stage-discharge relation is not affected by ice. Results fair for other periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of SACANDAGA RIVER NEAR HOPE, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 22 <i>a</i>	C. C. Covert.....	1.46	69.8
Nov. 9.....	A. H. Davison.....	2.44	421
Nov. 9.....	A. H. Davison.....	2.43	431
Jan. 15 <i>b</i>	E. D. Burchard.....	6.84	951
Feb. 20 <i>b</i>	A. H. Davison.....	3.25	274
Mar. 22 <i>b</i>	E. D. Burchard.....	4.75	622
June 7.....	E. D. Burchard.....	3.37	1,230
June 7.....	E. D. Burchard.....	3.33	1,190
June 8.....	E. D. Burchard.....	3.81	1,740

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily gage height, in feet, of SACANDAGA RIVER NEAR HOPE, for the year ended
June 30, 1917. Melvin Willis, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2.65	1.92	1.58	2.42	2.22	3.9	3.35	4.5	5.2	4.8	5.2	3.6
2.....	2.6	1.88	1.59	2.25	2.30	3.9	3.35	4.3	5.1	6.2	5.2	3.8
3.....	2.9	1.90	1.56	2.08	2.44	3.8	3.5	4.2	5.0	6.6	5.0	3.8
4.....	2.8	1.98	1.52	2.02	2.40	3.7	4.0	4.1	4.9	6.2	4.8	3.8
5.....	2.7	1.88	1.50	1.98	....	3.8	4.7	4.1	4.9	5.9	4.6	3.7
6.....	2.7	1.78	1.59	1.92	....	4.1	5.0	4.0	4.8	5.2	4.7	3.6
7.....	2.6	1.72	1.59	1.86	....	4.0	4.9	3.9	4.8	5.0	4.5	3.4
8.....	2.5	1.72	1.53	1.82	....	3.7	4.8	3.8	4.7	4.9	4.4	3.8
9.....	2.38	1.98	1.49	1.79	....	3.7	4.8	3.7	4.7	4.6	4.3	3.7
10.....	2.34	1.92	1.46	1.76	....	3.8	5.0	3.6	4.6	4.4	4.2	4.2
11.....	2.29	1.88	1.45	1.74	....	3.6	5.5	3.6	4.6	4.2	4.0	7.3
12.....	2.25	1.86	1.45	1.77	....	3.35	5.9	3.6	4.9	4.1	3.9	7.8
13.....	2.30	1.78	1.44	1.85	....	3.1	5.9	3.6	5.0	4.0	3.8	6.0
14.....	2.6	1.72	1.43	1.83	....	2.85	6.9	3.5	5.0	3.8	3.7	5.8
15.....	2.55	1.66	1.60	1.81	....	2.7	6.8	3.4	5.0	3.8	3.6	5.3
16.....	2.5	1.60	1.88	1.80	....	2.7	6.9	3.35	5.0	3.6	3.5	4.6
17.....	2.34	1.55	1.98	1.77	....	2.7	6.6	3.3	5.0	3.6	3.35	4.2
18.....	2.23	1.56	1.92	1.74	....	2.65	6.2	3.25	5.1	4.1	3.1	3.9
19.....	2.16	1.59	1.82	2.34	....	2.6	6.0	....	5.0	4.0	3.0	3.7
20.....	2.08	1.54	1.68	3.8	....	2.6	5.8	3.25	4.9	6.7	3.0	3.6
21.....	2.02	1.48	1.65	4.0	....	2.6	5.8	3.25	4.8	7.1	2.95	3.45
22.....	2.30	1.46	2.5	3.3	....	2.6	5.7	3.2	4.7	6.9	2.9	3.3
23.....	2.28	1.46	3.6	3.05	....	2.65	5.6	3.15	4.8	6.4	3.35	3.1
24.....	2.10	1.44	3.6	2.85	....	2.6	5.5	3.1	5.2	6.1	3.7	3.1
25.....	2.00	1.44	3.15	2.7	....	2.6	5.4	3.1	6.1	5.8	3.6	3.2
26.....	2.00	1.43	2.7	2.65	4.9	2.6	5.2	3.35	6.1	5.4	3.5	3.1
27.....	2.30	1.48	2.40	2.55	4.6	2.65	5.1	5.2	6.4	5.1	3.4	3.0
28.....	2.30	1.62	2.15	2.46	4.4	3.1	5.0	5.3	6.1	4.9	3.3	2.9
29.....	2.16	1.64	2.05	2.41	3.9	3.45	4.9	....	5.6	4.8	3.5	3.8
30.....	2.02	1.62	2.5	2.35	3.9	3.35	4.8	....	5.1	5.0	3.6	4.4
31.....	1.98	1.58	....	2.28	....	3.35	4.6	....	4.7	....	3.6	....

NOTE.—No gage observations, November 5 to 25, inclusive. Stage-discharge relation affected by ice, December 15 to March 26, inclusive.

Daily discharge, in second-feet, of SACANDAGA RIVER NEAR HOPE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	558	190	87	421	320	1,810	320	360	2,000	3,330	4,230	1,440
2.....	525	175	89	335	360	1,810	300	320	1,900	6,930	4,230	1,680
3.....	740	182	83	255	432	1,680	300	300	1,800	8,160	3,760	1,680
4.....	660	213	75	230	410	1,560	800	300	1,700	6,930	3,330	1,680
5.....	590	175	71	213	.....	1,680	340	320	1,600	6,070	2,930	1,560
6.....	590	141	89	190	.....	2,080	400	340	1,300	4,230	3,130	1,440
7.....	525	122	89	168	.....	1,940	600	340	950	3,760	2,740	1,220
8.....	465	122	77	154	.....	1,560	700	320	700	3,540	2,560	1,680
9.....	400	213	69	144	.....	1,560	700	320	600	2,930	2,390	1,560
10.....	380	190	64	135	.....	1,680	600	280	550	2,560	2,230	2,230
11.....	355	175	62	128	.....	1,440	550	280	550	2,230	1,940	10,600
12.....	335	168	62	138	.....	1,160	500	280	750	2,080	1,810	12,700
13.....	360	141	61	164	.....	910	480	240	850	1,940	1,680	6,350
14.....	525	122	59	158	.....	700	600	260	800	1,680	1,560	5,790
15.....	495	106	91	150	.....	600	950	260	850	1,680	1,440	4,480
16.....	465	91	175	147	.....	500	1,200	280	800	1,440	1,330	2,930
17.....	380	81	213	138	.....	460	950	300	800	1,440	1,160	2,230
18.....	325	83	190	128	.....	420	650	280	950	2,080	910	1,810
19.....	292	89	154	380	.....	400	550	280	800	1,940	820	1,560
20.....	255	79	111	1,680	.....	380	500	280	750	8,490	820	1,440
21.....	230	68	104	1,940	.....	400	550	260	650	9,900	780	1,280
22.....	360	64	465	1,110	.....	400	550	240	600	9,180	740	1,110
23.....	350	64	1,440	885	.....	420	550	240	650	7,530	1,160	910
24.....	264	61	1,440	700	.....	420	550	220	950	6,640	1,560	910
25.....	221	61	960	590	.....	420	550	200	2,200	5,790	1,440	1,010
26.....	221	59	590	558	3,540	420	480	320	4,400	4,730	1,330	910
27.....	360	68	410	495	2,930	440	460	2,200	7,530	3,990	1,220	820
28.....	360	96	287	443	2,590	440	440	2,200	6,640	3,540	1,110	740
29.....	292	101	242	416	1,810	400	440	.....	5,250	3,330	1,330	1,680
30.....	230	96	465	385	1,810	380	400	.....	3,990	3,760	1,440	2,560
31.....	213	87	.....	350	.....	340	380	.....	3,170	.....	1,440	.....
Mean...	397	119	279	429	764	929	544	421	1,840	4,390	1,890	2,600

NOTE.—Mean discharge, November 5 to 25, inclusive, estimated as 416 second-feet. Discharge, December 15 to March 26, inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage height graph and comparison with a similar study for the station at Hadley.

Monthly discharge of SACANDAGA RIVER NEAR HOPE, for the year ended June 30, 1917

[Drainage area, 494 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	740	213	397	0.804	0.93
August.....	213	59	119	0.241	0.28
September.....	1,440	59	279	0.565	0.63
October.....	1,940	128	429	0.868	1.00
November.....	3,540	.....	764	1.55	1.73
December.....	2,080	340	929	1.88	2.17
January.....	1,200	300	544	1.10	1.27
February.....	2,200	200	421	0.852	0.89
March.....	7,350	550	1,840	3.72	4.29
April.....	9,900	1,440	4,390	8.89	9.92
May.....	4,230	740	1,890	3.83	4.42
June.....	12,700	820	2,600	5.26	5.87
The year.....	12,700	59	1,210	2.45	33.40

SACANDAGA RIVER AT HADLEY

Location.—About $\frac{1}{2}$ mile west of railroad station at Hadley, Saratoga county, 1 mile above mouth of river and $4\frac{1}{2}$ miles below site of proposed storage dam at Conklingville.

Drainage area.—1,060 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—January 1, 1911, to June 30, 1917. September 13, 1907, to December 31, 1910, at upper bridge station; September 24, 1909, to midsummer of 1911, at lower bridge station.

Gage.—Gurley hydrograph water-stage recorder in a concrete shelter on the left bank about $\frac{1}{2}$ mile west of railroad station at Hadley.

This recorder was installed January 6, 1916, replacing a Barrett and Lawrence hydro-chronograph. Recorder inspected by J. F. Kelly.

Discharge measurements.—Made from a cable about 30 feet above the gage or by wading under the cable or about $\frac{3}{4}$ mile above gage.

Channel and control.—Very rough but permanent.

Extremes of discharge.—Current year: Maximum stage recorded from water-stage recorder, 8.53 feet from noon until 10 P. M., April 4; discharge, 12,800 second-feet. Minimum stage from water-stage recorder, 2.50 feet at noon, August 23 and September 13; discharge, 138 second-feet.

1911–1917: Maximum stage from water-stage recorder, 12.36 feet from 11 A. M. to 12 noon, March 28, 1913; discharge, approximately 35,500 second-feet. Minimum stage from water-stage recorder, 2.25 feet all day September 16, 1913; discharge, 61 second-feet.

Ice.—Stage-discharge relation seriously affected by ice.

Accuracy.—Stage-discharge relation permanent; affected by ice during a large part of period from December to March, inclusive. Rating curve well defined between 150 and 20,000 second-feet. Operation of water-stage recorders satisfactory throughout the year. Daily discharge ascertained by applying to the rating table mean daily gage heights determined by inspecting gage height graph. Results excellent for periods when the stage-dis-

charge relation is not affected by ice. Results fairly good for other periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of SACANDAGA RIVER AT HADLEY, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 10 a.	A. H. Davison	2.83	312
Jan. 9 b.	E. D. Burchard	5.04	1,500
Jan. 30 b.	A. H. Davison	4.25	891
Feb. 23 b.	E. D. Burchard	3.96	543
Mar. 20 b.	A. H. Davison	4.97	1,460
April 9.	E. D. Burchard	6.93	7,480
April 11.	E. D. Burchard	6.37	5,740
April 16.	E. D. Burchard	5.49	3,640
May 10.	E. D. Burchard	5.90	4,340
June 14.	E. D. Burchard	8.38	12,300
June 14.	E. D. Burchard	8.33	12,100

a Measurement made by wading.

b Measurement made through partial ice cover.

Daily gage height, in feet, of SACANDAGA RIVER AT HADLEY, for the year ended June 30, 1917. J. F. Kelly, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	4.05	3.06	2.68	3.35	3.30	6.1	4.85	4.08	6.25	7.5	6.25	5.6
2.	3.88	2.97	2.68	3.39	3.31	6.2	4.6	4.15	6.45	7.4	6.3	5.4
3.	4.12	2.90	2.58	3.22	3.39	6.0	4.42	4.38	6.3	8.0	6.4	5.2
4.	4.7	2.86	2.58	3.11	3.37	5.7	4.28	4.65	6.2	8.5	6.35	5.2
5.	4.7	2.85	2.57	3.03	3.36	5.4	4.20	4.65	6.3	8.4	6.25	5.1
6.	4.5	2.86	2.57	2.97	3.43	5.45	4.43	4.7	6.15	8.1	6.25	4.85
7.	4.20	2.83	2.59	2.89	3.45	5.5	4.85	4.5	5.9	7.7	6.2	4.85
8.	3.96	2.81	2.61	2.85	3.49	5.35	5.05	4.12	5.5	7.4	6.15	4.9
9.	3.88	2.81	2.68	2.81	3.50	5.1	5.0	3.97	5.25	7.0	6.05	5.35
10.	3.74	2.81	2.63	2.80	3.49	5.1	4.85	4.13	5.0	6.65	5.9	5.45
11.	3.61	2.84	2.59	2.78	3.53	5.15	4.75	4.7	4.8	6.35	5.75	...
12.	3.59	2.88	2.55	2.77	3.53	4.95	4.7	5.0	4.75	6.15	5.6	7.5
13.	3.52	2.88	2.51	2.77	3.50	4.65	4.6	5.05	5.0	6.0	5.4	8.2
14.	3.70	2.81	2.51	2.84	3.49	4.20	4.8	5.0	5.3	5.85	5.25	8.4
15.	3.87	2.78	2.65	3.12	3.52	4.06	4.85	4.7	5.3	5.7	5.05	7.8
16.	3.72	2.74	2.78	3.22	3.48	4.07	5.15	4.6	5.2	5.55	4.9	7.2
17.	3.57	2.70	3.01	3.15	3.44	4.09	5.6	4.46	5.15	5.4	4.7	6.7
18.	3.46	2.67	3.04	3.07	3.47	4.09	5.7	4.10	5.15	5.55	4.6	6.25
19.	3.36	2.56	2.91	3.07	3.52	4.06	5.55	4.22	5.05	5.9	4.42	5.9
20.	3.27	2.53	2.84	3.30	3.51	4.11	5.3	3.99	4.95	6.5	4.25	5.5
21.	3.18	2.56	2.76	4.18	3.42	4.02	5.1	3.91	4.8	7.3	4.18	5.2
22.	3.34	2.58	2.73	4.65	3.25	4.05	4.95	4.02	4.8	8.0	4.12	4.9
23.	3.52	2.50	2.72	4.37	3.27	4.10	4.8	3.92	4.8	8.3	4.20	4.6
24.	3.46	2.52	3.85	4.11	...	4.11	4.7	3.86	5.15	8.3	4.6	4.5
25.	3.30	2.52	3.85	3.91	5.55	4.09	4.55	4.16	5.7	8.0	4.85	4.65
26.	3.21	2.56	3.50	3.78	5.55	4.25	4.48	3.84	6.15	7.6	4.9	4.55
27.	3.22	2.54	3.26	3.66	5.4	4.38	4.48	4.20	6.55	7.2	4.75	4.43
28.	3.21	2.53	3.12	3.56	5.05	4.21	4.40	5.25	6.85	6.85	4.55	4.28
29.	3.35	2.64	3.04	3.47	5.05	4.35	4.34	...	7.4	6.55	...	...
30.	3.30	2.70	3.07	3.39	5.3	4.65	4.20	...	7.6	6.35	5.6	...
31.	3.16	2.71	...	3.32	...	4.9	4.11	...	7.7	...	5.8	...

NOTE.—Stage-discharge relation affected by ice December 15 to March 27, inclusive.

Daily discharge, in second-feet, of SACANDAGA RIVER AT HADLEY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,220	401	210	587	552	4,840	550	850	3,600	9,030	5,340	3,770
2.....	1,040	350	184	615	559	5,080	550	800	4,000	8,700	5,470	3,350
3.....	1,290	312	168	499	615	4,600	500	800	3,600	10,800	5,730	2,960
4.....	2,050	292	161	430	601	3,900	500	750	3,400	12,600	5,600	2,960
5.....	2,050	288	165	383	594	3,270	500	750	3,600	12,200	5,340	2,780
6.....	1,760	292	165	350	645	3,370	700	700	3,400	11,100	5,340	2,350
7.....	1,380	278	172	307	660	3,470	1,100	700	3,000	9,710	5,210	2,350
8.....	1,120	268	180	288	690	3,180	1,400	700	2,200	8,700	5,080	2,430
9.....	1,020	268	189	238	698	2,710	1,500	650	1,800	7,430	4,820	3,250
10.....	901	268	189	233	690	2,710	1,300	650	1,500	6,410	4,460	3,460
11.....	787	283	172	254	722	2,800	1,200	600	1,300	5,600	4,100	4,370
12.....	770	302	157	250	722	2,430	1,100	600	1,200	5,080	3,770	9,030
13.....	714	302	142	250	698	1,980	1,000	600	1,500	4,700	3,350	11,500
14.....	864	238	142	283	690	1,380	1,300	600	1,900	4,340	3,030	12,200
15.....	1,020	254	197	436	714	1,100	1,300	600	1,900	3,990	2,690	10,000
16.....	882	236	254	499	683	900	1,700	600	1,800	3,660	2,430	8,050
17.....	754	218	372	455	652	850	2,400	600	1,700	3,350	2,110	6,550
18.....	668	205	389	407	675	750	2,600	600	1,700	3,660	1,950	5,340
19.....	504	161	317	407	714	700	2,300	550	1,600	4,450	1,680	4,460
20.....	532	149	283	552	703	650	2,000	550	1,400	6,000	1,450	3,560
21.....	474	161	245	1,360	637	650	1,700	500	1,300	8,370	1,370	2,960
22.....	580	168	232	1,980	519	650	1,500	550	1,200	10,800	1,290	2,430
23.....	714	138	227	1,590	532	703	1,400	500	1,300	11,900	1,390	1,950
24.....	668	146	1,010	1,280	1,520	700	1,300	450	1,700	11,900	1,950	1,800
25.....	552	146	1,010	1,070	3,580	700	1,170	650	2,800	10,800	2,350	2,030
26.....	493	161	698	938	3,580	700	1,100	450	4,000	9,370	2,430	1,880
27.....	499	153	526	830	3,270	650	1,100	700	5,500	8,050	2,190	1,700
28.....	493	149	435	741	2,620	600	1,000	1,800	6,980	6,980	1,880	1,490
29.....	587	193	389	675	2,620	600	1,000	.....	8,700	6,140	2,170	1,570
30.....	552	218	407	615	3,080	550	850	.....	9,370	5,600	3,770	3,520
31.....	461	222	.....	566	.....	550	850	.....	9,710	.....	4,220	.....
Mean...	887	234	313	627	1,170	1,860	1,240	673	3,180	7,710	3,350	4,200

NOTE.—Discharge, December 15 to March 27, inclusive, estimated, because of ice, from discharge measurements, weather records, and study of gage height graph.

Monthly discharge of SACANDAGA RIVER AT HADLEY, for the year ended June 30, 1917

[Drainage area, 1,067 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	2,050	461	887	0.837	0.96
August.....	401	138	234	0.221	0.25
September.....	1,010	142	313	0.295	0.33
October.....	1,980	250	627	0.592	0.68
November.....	3,580	519	1,170	1.10	1.23
December.....	5,080	550	1,860	1.75	2.02
January.....	2,600	500	1,240	1.17	1.35
February.....	1,800	450	673	0.635	0.66
March.....	9,710	1,200	3,180	3.00	3.46
April.....	12,600	3,350	7,710	7.27	8.11
May.....	5,730	1,290	3,350	3.16	3.64
June.....	12,200	1,490	4,200	3.96	4.42
The year.....	12,600	138	2,120	2.00	27.11

WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR WELLS

Location.—At the highway bridge, known as Blackbridge, 2 miles above the junction of east and west branches of Sacandaga river and about 3 miles west of Wells, Hamilton county.

Drainage area.—211 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—March 14, 1911, to September 30, 1916, when the station was discontinued.

Gage.—Chain, on upstream side of bridge; datum unchanged. Gage read by Cornelius DeGroof.

Discharge measurements.—Made from the bridge or by wading.

Channel and control.—Rocky; shifting occasionally during floods.

Extremes of discharge.—1911–1916: Maximum stage recorded, 11.5 feet 4 P. M., March 27, 1913; discharge, approximately 29,000 second-feet. Minimum stage recorded, 2.3 feet, September 17 and 21, 1913; discharge, approximately 3 second-feet.

Ice.—Stage-discharge relation affected by ice.

Regulation.—Flow slightly affected by storage dams used for logging in spring.

Accuracy.—Stage-discharge relation probably permanent excepting for change during high water. Affected by ice for a large part of the period from December to March, inclusive. Rating curve not well defined. Gage read to half-tenths twice daily. Results fairly good for periods when the stage-discharge relation is not affected by ice. Results fair for other periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR WELLS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Aug. 22 a.	C. C. Covert.....	2.68	30.4
Nov. 10.	A. H. Davison.....	3.76	210
Nov. 10.	A. H. Davison.....	3.78	238

a Measurement made by wading.

Daily gage height, in feet, of WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR WELLS, for the year ended June 30, 1917. Cornelius DeGroff, Observer

DAY	July	Aug.	Sept.	DAY	July	Aug.	Sept.
1.....	3.6	2.90	2.62	16.....	3.35	2.60	3.30
2.....	4.3	2.75	2.80	17.....	3.40	2.55	3.20
3.....	3.7	2.60	2.80	18.....	3.20	2.60	2.92
4.....	4.25	2.92	2.60	19.....	3.15	2.60	.....
5.....	4.3	2.82	2.60	20.....	3.05	2.58	.....
6.....	3.95	2.75	2.68	21.....	3.5	2.60	.....
7.....	3.8	2.80	2.70	22.....	3.00	2.60	.....
8.....	3.6	2.80	2.72	23.....	3.15	2.60	4.5
9.....	3.9	2.75	2.68	24.....	3.10	2.60	3.6
10.....	3.42	2.70	2.60	25.....	3.08	2.60	3.55
11.....	3.38	2.72	2.55	26.....	2.98	2.60	3.45
12.....	3.28	2.65	2.55	27.....	2.92	2.50	3.45
13.....	3.40	2.80	2.50	28.....	3.55	2.70	3.22
14.....	3.65	2.70	2.50	29.....	3.32	2.75	3.35
15.....	3.42	2.60	3.15	30.....	3.12	2.65	3.7
				31.....	3.05	2.70	.....

Daily discharge, in second-feet, of WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR WELLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	DAY	July	Aug.	Sept.
1.....	176	54	25	16.....	121	23	112
2.....	440	37	42	17.....	130	19	99
3.....	203	23	42	18.....	96	23	57
4.....	418	57	23	19.....	88	23	40
5.....	440	44	23	20.....	74	21	35
6.....	288	37	30	21.....	152	23	240
7.....	234	42	32	22.....	67	23	660
8.....	176	42	34	23.....	88	23	540
9.....	269	37	30	24.....	81	23	176
10.....	134	32	23	25.....	78	23	164
11.....	126	34	19	26.....	64	15	141
12.....	109	28	19	27.....	57	15	141
13.....	130	42	15	28.....	164	32	99
14.....	190	32	15	29.....	116	37	121
15.....	134	23	88	30.....	84	28	203
				31.....	74	32	.....
				Mean.....	161	30.5	110

NOTE.—Daily discharge, September 19 to 23, inclusive, estimated by comparison with discharge at Hope.

Monthly discharge of WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR
WELLS, for the year ended June 30, 1917

[Drainage area, 211 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July	440	57	161	0.763	0.88
August	57	15	30.5	0.144	0.17
September	660	15	110	0.522	0.58

HOOSIC RIVER

DESCRIPTION

Hoosic river has its sources on the west slope of the Hoosic mountains in Vermont and Massachusetts. Two head branches, one flowing southward, the other northward along the west slope of this range, unite at North Adams, Mass., and the stream then flows northwestward, entering the Hudson three miles north of Mechanicville. Above Buskirk the drainage basin is rugged and precipitous, the distribution of tributaries affording rapid concentration of the run-off from the steep rock slopes. The ridges are sparsely wooded. The soil in the valleys is generally firm and tenacious. The general elevation of the valley at the junction of the headwaters is 1,000 feet. Numerous dams, affording power for textile, agricultural implement and other industries, are scattered throughout the length of the stream from North Adams to Schaghticoke. The drainage basin contains no important lakes and but one storage reservoir, that at Farnum, near the head of the south branch.

HOOSIC RIVER AT HOOSICK FALLS

This station, established April 3, 1904, and maintained by this Department in coöperation with the United States Weather Bureau, is located on the Hoosic river above the dam at the factory of the Walter A. Wood Mowing and Reaping Machine

Company, Hoosick Falls. The gage is a staff attached to the river end of the partition wall of the head-gate chamber on the left bank of the stream. Since July 14, 1908, the zero of the gage has been at the elevation of the crest of the dam, the gage reading from 0 to 5 feet above and below. Readings taken twice daily—at 7 A. M. and 5 P. M.—to tenths.

Daily gage height, in feet, of HOOSIC RIVER AT HOOSICK FALLS, for the year ended June 30, 1917. Sanford L. Cluett, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	0.1	0.05	0.0	0.0	0.0	0.95	0.2	0.1	0.55	1.2	0.3	0.1
2.....	0.1	0.0	0.0	0.0	0.0	0.65	0.25	0.1	0.6	1.85	0.3	0.1
3.....	0.35	0.2	0.0	0.0	0.0	0.6	0.2	0.05	0.75	1.3	0.3	0.2
4.....	0.2	0.25	0.0	0.0	0.0	0.55	0.15	0.1	0.3	1.05	0.3	0.1
5.....	0.2	0.25	0.0	0.0	0.05	0.55	0.2	0.05	0.15	0.9	0.35	0.1
6.....	0.1	0.0	0.0	0.0	0.15	0.45	0.8	0.05	0.05	0.85	a	0.1
7.....	0.1	0.3	0.1	0.0	0.05	0.4	0.65	0.05	0.05	0.85	0.5	0.15
8.....	0.1	0.3	0.2	0.0	0.0	0.4	0.45	0.05	0.2	0.8	0.5	0.55
9.....	0.1	0.3	0.1	0.0	0.0	0.35	0.25	0.05	0.2	0.65	0.6	0.45
10.....	0.15	0.25	0.0	0.0	0.15	0.35	0.15	0.05	0.55	0.55	0.45	0.40
11.....	0.1	0.2	0.0	0.0	0.1	0.3	0.1	0.1	0.3	0.5	0.4	0.4
12.....	0.1	0.0	0.0	0.0	0.05	0.3	0.1	0.0	1.4	0.45	0.5	0.4
13.....	0.15	0.0	0.0	0.0	0.15	0.25	0.1	0.0	0.7	0.35	0.5	0.35
14.....	0.5	0.25	0.0	0.0	0.05	0.25	1.15	0.0	0.35	0.3	0.4	0.3
15.....	0.7	0.25	0.0	0.0	0.05	0.25	1.25	0.0	0.2	0.4	0.3	0.4
16.....	0.1	0.3	0.4	0.0	0.05	0.25	0.7	0.0	0.2	0.25	0.2	0.25
17.....	0.15	0.3	0.05	0.0	0.05	0.3	0.5	0.0	0.3	0.2	0.2	0.2
18.....	0.1	0.3	0.0	0.0	0.0	0.2	0.35	0.1	0.5	0.2	0.2	0.15
19.....	0.1	0.3	0.0	0.0	0.0	0.2	0.25	0.0	0.5	0.2	0.2	0.1
20.....	0.1	0.0	0.0	0.2	0.05	0.15	0.25	0.0	0.35	0.8	a	0.1
21.....	0.1	0.25	0.0	0.2	0.0	0.15	0.3	0.0	0.3	1.05	0.1	0.1
22.....	0.1	0.25	0.0	0.05	0.0	0.25	0.15	0.0	0.2	0.9	0.1	0.1
23.....	0.1	0.25	0.0	0.0	0.0	1.0	0.1	0.0	0.3	0.85	0.1	0.1
24.....	0.15	0.25	0.0	0.0	1.17	0.55	0.1	0.0	1.25	0.65	0.1	0.1
25.....	0.1	0.25	0.0	0.0	0.65	0.45	0.1	0.2	1.3	0.45	0.1	0.05
26.....	0.1	0.0	0.0	0.0	0.5	0.4	0.1	0.55	1.2	0.35	0.1	0.0
27.....	0.35	0.0	0.0	0.0	0.5	0.35	0.1	2.6	1.25	0.35	0.1	0.1
28.....	0.2	0.0	0.0	0.0	0.35	0.25	0.2	1.25	2.35	0.4	0.1	0.0
29.....	0.15	0.0	0.15	0.0	0.25	0.15	0.1	.....	1.25	0.4	0.1	0.0
30.....	0.1	0.0	0.0	0.0	1.05	0.15	0.2	.....	1.0	0.3	a	0.0
31.....	0.1	0.0	.....	0.0	.....	0.15	0.2	.....	0.75	.....	0.15	.....

a No record.

HOOSIC RIVER NEAR EAGLE BRIDGE

Location.—One-half mile below Walloomsac river and 1½ miles above Owl kill and Eagle Bridge, Rensselaer county.

Drainage area.—512 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—August 13, 1910, to June 30, 1917. September 25, 1903, to December 31, 1908, at Buskirk, 4 miles below present station.

Gage.—Inclined staff on left bank near the farm house of James Russell, about $1\frac{1}{2}$ miles above Eagle Bridge. Prior to August 17, 1914, chain gage, 400 feet above present site. Gage read by Mrs. Vashti Russell, Mrs. Viola Davis and Mrs. Volney Russell.

Discharge measurements.—Made from cable half mile below gage or by wading.

Channel and control.—Gravel; somewhat shifting.

Extremes of discharge.—Current year: Maximum stage recorded, 9.7 feet at 7:30 A. M., February 27; discharge, approximately 8,040 second-feet. Minimum stage recorded, 2.75 feet at 7:30 A. M., August 27, and 5 P. M., September 10; discharge, 54 second-feet.

1910–1917: Maximum stage not recorded, as gage used prior to August 17, 1914, could not be reached at high stages. Minimum stage recorded, 6.1 feet at 5 P. M., September 14, 1913; discharge, approximately zero.

Ice.—Stage-discharge relation affected by ice.

Regulation.—Flow affected by storage on Walloomsac river and at Hoosick Falls about 2 miles above gage.

Accuracy.—Stage-discharge relation probably permanent during year; affected by ice during a large portion of the period from December to March, inclusive. Rating curve well defined between 75 and 7,000 second-feet. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good except for periods of low water, when semidaily gage heights may not indicate the true mean and during periods when the stage-discharge relation is affected by ice. Results fair for the latter periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Engineer and Surveyor.

Discharge measurements of HOOSIC RIVER NEAR EAGLE BRIDGE, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Oct. 9 a.....	E. D. Burchard.....	3.22	209
Oct. 13 a.....	E. D. Burchard.....	3.14	144
Oct. 13 a.....	E. D. Burchard.....	3.08	127
Oct. 13 a.....	E. D. Burchard.....	2.99	98.6
Oct. 13 a.....	E. D. Burchard.....	2.94	95.9
Jan. 12 b.....	E. D. Burchard.....	4.25	378
Jan. 31 b.....	A. H. Davison.....	4.61	678
Feb. 24 c.....	A. H. Davison.....	4.19	290
Mar. 21.....	E. D. Burchard.....	4.30	734
Mar. 21.....	E. D. Burchard.....	4.33	760
June 6 a.....	E. D. Burchard.....	4.74	1,090

a Measurement made by wading.

b Measurement made through partial ice cover.

c Measurement made through complete ice cover.

Daily gage height, in feet, of HOOSIC RIVER NEAR EAGLE BRIDGE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3.6	3.75	3.20	3.75	3.46	6.6	4.2	4.45	5.1	6.3	4.75	4.25
2.....	3.45	3.6	3.4	3.75	3.55	5.0	4.45	4.2	4.7	7.9	4.85	4.1
3.....	4.45	3.4	3.1	3.32	3.34	4.9	4.15	4.2	4.4	7.2	4.9	4.35
4.....	4.2	3.45	2.91	3.32	3.9	4.85	4.15	4.1	4.2	0.4	4.6	4.35
5.....	4.2	3.45	3.25	3.16	8.8	5.0	4.1	4.55	4.3	6.2	5.0	4.3
6.....	3.85	3.85	3.3	3.26	4.0	5.1	5.0	4.5	3.85	5.9	5.4	4.4
7.....	3.7	3.0	3.35	3.15	3.8	4.75	5.7	4.6	4.2	6.1	5.1	4.65
8.....	3.55	3.5	2.25	2.99	3.6	4.7	4.75	3.8	4.2	5.6	5.1	5.6
9.....	3.45	4.0	3.15	3.18	3.65	4.7	4.5	4.1	4.8	5.4	5.3	4.85
10.....	3.8	3.55	2.90	....	4.0	6.0	4.55	4.1	4.55	5.1	5.2	4.7
11.....	3.65	3.45	3.3	3.30	4.0	4.7	4.55	4.05	4.5	4.9	5.1	4.85
12.....	3.65	3.85	3.25	3.22	3.7	4.7	4.3	4.4	6.8	4.9	5.2	5.0
13.....	4.05	3.35	3.2	3.22	3.9	4.5	4.4	4.6	5.3	4.8	5.0	4.8
14.....	5.1	3.6	3.25	3.6	4.0	4.4	4.5	4.5	4.85	4.6	4.9	4.55
15.....	4.3	3.45	3.35	3.49	4.0	4.3	5.8	4.7	4.6	5.1	4.8	4.7
16.....	3.9	3.25	4.85	3.49	3.8	4.3	5.4	4.4	4.65	4.6	4.7	4.55
17.....	4.05	3.25	3.9	3.41	3.8	4.1	5.1	4.35	4.9	4.4	4.6	4.4
18.....	4.0	3.3	3.8	3.36	3.8	4.3	5.1	4.2	4.85	4.6	4.35	4.2
19.....	2.85	3.2	3.55	3.32	3.65	4.2	....	4.3	4.5	4.75	4.3	4.1
20.....	3.85	3.05	3.5	3.95	3.9	4.2	....	4.3	4.25	6.2	4.15	4.0
21.....	3.65	3.2	3.35	4.1	3.75	4.2	4.55	4.5	4.25	6.3	4.2	3.9
22.....	3.8	3.2	3.3	3.6	3.6	4.6	4.8	4.3	4.7	6.8	4.1	3.85
23.....	4.3	3.25	3.3	3.75	3.6	5.7	4.45	4.3	4.9	6.3	4.2	3.7
24.....	4.05	3.25	3.8	3.5	6.8	5.2	4.4	4.2	7.3	5.7	4.35	3.7
25.....	3.9	3.2	3.75	3.45	5.3	4.95	4.3	4.4	6.4	5.3	4.35	4.1
26.....	4.0	3.25	3.35	3.40	4.7	4.7	4.15	5.5	6.3	5.1	4.2	3.9
27.....	4.65	3.05	3.25	3.38	4.5	4.7	4.15	9.3	6.8	4.95	4.15	3.85
28.....	4.1	3.55	3.25	3.38	4.5	4.6	4.0	6.1	9.1	4.9	4.15	3.55
29.....	3.9	3.6	3.25	3.20	4.35	4.5	4.15	....	7.0	4.75	4.45	3.75
30.....	3.75	3.4	3.65	3.39	6.0	4.1	4.6	....	6.1	4.85	4.7	3.6
31.....	3	3.35	....	3.41	....	3.95	4.7	....	5.6	....	4.45	....

NOTE.— Stage-discharge relation affected by ice, December 16 to 21 and January 9 to February 25, inclusive.

Daily discharge, in second-feet, of HOOSIC RIVER NEAR EAGLE BRIDGE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	325	395	165	395	264	3,070	650	600	1,390	2,700	1,060	678
2.....	210	325	240	395	302	1,290	800	420	1,020	4,930	1,160	585
3.....	820	240	132	208	216	1,200	600	400	780	3,880	1,200	745
4.....	645	260	83	208	470	1,160	600	340	645	2,820	940	745
5.....	645	290	182	149	420	1,290	550	600	710	2,580	1,290	710
6.....	445	220	200	183	525	1,390	1,300	550	445	2,230	1,690	780
7.....	370	105	220	149	420	1,060	2,030	600	645	2,460	1,390	980
8.....	302	280	182	103	325	1,020	1,100	220	645	1,900	1,390	1,900
9.....	230	525	149	159	348	1,020	800	368	1,110	1,690	1,590	1,160
10.....	420	302	95	180	525	2,340	650	320	900	1,390	1,490	1,020
11.....	348	260	200	200	525	1,020	500	280	860	1,200	1,390	1,160
12.....	348	220	182	172	370	1,020	420	440	3,330	1,200	1,490	1,290
13.....	555	220	165	172	470	800	480	500	1,590	1,110	1,290	1,110
14.....	1,390	325	182	325	525	780	800	440	1,160	940	1,200	900
15.....	710	250	220	276	525	710	2,200	500	940	1,390	1,110	1,020
16.....	470	182	1,160	276	420	600	1,700	400	980	940	1,020	980
17.....	555	182	470	244	420	600	1,400	360	1,200	780	890	780
18.....	525	200	420	224	420	550	1,400	280	1,150	940	745	645
19.....	415	135	302	208	348	550	1,000	320	860	1,080	710	585
20.....	415	119	280	498	470	560	900	340	678	2,580	615	525
21.....	348	165	220	585	395	600	800	420	678	2,700	645	470
22.....	420	165	200	325	325	940	700	320	1,020	3,330	585	445
23.....	710	182	200	395	325	2,010	650	320	1,200	2,700	645	370
24.....	555	182	420	280	3,330	1,490	550	280	4,020	2,010	745	370
25.....	470	155	395	290	1,590	1,290	500	380	2,820	1,590	745	585
26.....	525	182	220	240	1,020	1,020	480	1,790	2,700	1,390	645	470
27.....	980	119	182	232	860	1,020	420	7,270	3,330	1,240	615	445
28.....	585	302	182	232	800	940	400	2,480	6,910	1,200	615	302
29.....	470	325	182	165	745	800	420	.....	3,600	1,030	820	395
30.....	395	240	348	238	2,340	585	650	.....	2,400	1,160	1,020	325
31.....	420	220	.....	244	.....	498	750	.....	1,900	.....	820	.....
Mean....	521	235	259	256	670	1,080	844	768	1,670	1,900	1,020	746

NOTE.—Discharge, December 16 to 21 and January 9 to February 25, both inclusive, estimated because of ice, from discharge measurements, weather records and study of gage height graph

Monthly discharge of HOOSIC RIVER NEAR EAGLE BRIDGE, for the year ended June 30, 1917

[Drainage area, 512 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF, Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,390	260	521	1.02	1.18
August.....	525	105	235	0.459	0.63
September.....	1,160	83	259	0.508	0.66
October.....	585	103	256	0.500	0.68
November.....	3,330	216	670	1.31	1.46
December.....	3,070	498	1,080	2.11	2.43
January.....	2,200	400	844	1.65	1.90
February.....	7,270	220	768	1.50	1.56
March.....	6,910	445	1,670	3.26	3.76
April.....	4,930	780	1,900	3.71	4.14
May.....	1,690	585	1,020	1.99	2.29
June.....	1,900	312	746	1.46	1.63
The year.....	7,270	83	830	1.62	22.02

HOOSIC RIVER AT SCHAGHTICOKE

Location.—At the dam of the Schaghticoke power-plant of the Schenectady Power Company located at the highway bridge at Schaghticoke on the Hoosic river about $6\frac{1}{2}$ miles above its confluence with the Hudson river. The power-plant is about 1 mile below the dam and connected therewith by a canal and steel penstock.

Drainage area.—635 square miles.

Records available.—December 1, 1908, to June 30, 1917.

Gage.—Indicating water-surface above dam, consists of a float operating contacts, which by voltage drop indicates in the powerhouse the water-surface. Gage in the forebay at end of canal is a staff gage graduated to tenths.

Control.—Discharge estimates based on the flow over the dam and the flow through the wheels estimated from hourly readings reduced by curves furnished by water-wheel manufacturers, based upon tests after installation. There are 4 radial inward flow Francis type wheels manufactured by Pelton, each 5,000 hp.

Extremes of discharge.—Current year: Maximum mean daily discharge recorded, 8,418 second-feet on February 27. Minimum mean daily discharge recorded, 0 second-feet on October 7.

1908–1917: Maximum stage recorded, approximately 25,000 second-feet, February 6, 1909. Minimum stage recorded, 0 second-feet on a number of days, due to interruption of flow by plants farther upstream.

Regulation.—During low stages discharge appreciably affected by local storage at power-plants above station.

Coöperation.—Established and maintained by the Schenectady Power Company, discharge reduced and furnished by Mr. E. B. Doen, Superintendent, Schaghticoke, N. Y.

Daily discharge, in second-feet, of HOOSIC RIVER AT SCHAGHTICOKE, for the year^r
ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	277	231	225	185	298	4,181	510	506	500	2,035	1,215	1,200
2.....	56	167	115	306	208	852	440	350	885	5,178	1,214	694
3.....	810	215	150	208	185	585	464	100	810	3,959	1,093	1,000
4.....	555	231	32	137	200	500	357	60	515	2,807	1,040	690
5.....	413	312	208	86	393	2,000	883	252	319	2,412	984	639
6.....	401	0	219	77	459	1,652	1,657	143	216	2,399	1,358	896
7.....	309	104	112	0	398	1,279	926	184	413	2,499	1,596	1,468
8.....	320	0	185	8	333	1,120	976	155	643	2,172	1,610	1,929
9.....	196	240	92	138	335	1,231	888	242	1,185	1,767	1,623	1,289
10.....	253	205	108	150	473	1,236	900	83	1,146	1,550	1,632	1,423
11.....	309	160	150	81	370	755	654	81	1,163	1,200	1,455	1,382
12.....	300	231	138	11	153	909	237	57	1,761	993	1,290	1,200
13.....	983	0	104	208	439	910	357	176	1,798	1,194	1,068	1,000
14.....	1,076	277	91	248	495	634	2,117	115	1,206	701	1,250	1,008
15.....	682	147	700	150	445	641	1,013	127	914	800	1,132	834
16.....	277	13	833	208	462	590	810	104	1,448	974	1,080	877
17.....	424	58	433	270	335	417	641	116	1,553	638	981	914
18.....	401	208	318	80	413	718	731	81	1,006	1,056	1,020	704
19.....	446	208	190	243	338	456	562	141	780	1,308	628	676
20.....	277	198	308	694	385	652	258	162	1,174	2,492	100	567
21.....	301	23	7	277	300	495	430	143	1,015	2,684	1,330	504
22.....	474	127	150	211	340	1,156	473	188	1,438	2,395	613	401
23.....	532	46	100	276	616	1,535	335	187	1,473	2,505	700	393
24.....	444	117	0	276	2,000	1,075	392	197	2,458	1,801	678	433
25.....	437	335	401	202	662	1,232	324	212	4,400	1,358	700	554
26.....	600	243	241	195	547	702	169	3,287	4,025	1,204	686	434
27.....	840	92	178	101	709	1,167	369	8,418	5,989	1,216	568	500
28.....	565	335	288	121	682	683	278	2,197	5,065	1,181	646	438
29.....	518	324	271	5	744	810	331	.....	3,645	894	1,030	358
30.....	150	185	313	220	1,097	476	483	.....	2,560	1,200	952	462
31.....	400	150	.....	150	.....	399	626	.....	2,760	.....	710	.....
Mean...	452	167	222	178	494	1,002	632	645	1,808	1,819	1,030	829

Monthly discharge of HOOSIC RIVER AT SCHAGHTICOKE, for the year ended June 30,
1917

[Drainage area, 635 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,076	56	452	0.712	0.82
August.....	335	0	167	0.263	0.30
September.....	833	0	222	0.350	0.39
October.....	694	0	178	0.280	0.32
November.....	2,000	153	494	0.778	0.87
December.....	4,181	399	1,002	1.578	1.82
January.....	2,117	169	632	0.995	1.15
February.....	8,418	57	645	1.016	1.06
March.....	6,989	216	1,808	2.847	3.28
April.....	5,178	638	1,819	2.865	3.20
May.....	1,632	100	1,030	1.622	1.87
June.....	1,929	358	829	1.306	1.46
The year.....	8,418	0	773	1.217	16.53

MOHAWK RIVER

DESCRIPTION

Mohawk river, the largest tributary of the Hudson, rises in the sandy hills south of Boonville, in central New York, about 40 miles from the east end of Lake Ontario. Its uppermost tributaries are fed by large springs. The river receives also considerable water brought in from the adjacent Black river drainage basin for the supply of Black River and Erie canals. The Mohawk flows southward until it reaches the city of Rome, at which point it turns toward the east, flowing across the state in a course nearly east until it enters the Hudson at Cohoes opposite North Troy. Its total length is about 140 miles and its drainage area comprises 3,486 square miles.

The immediate valley of the Mohawk is broad and open, at many places a mile or two in width, and the flats which border the stream have a rich alluvial soil, finely adapted to the raising of grass, grains and broom corn. Back of the flats there is a rise, usually gradual, but in certain localities more or less abrupt, to hills which attain altitudes several hundred feet above the stream. The more elevated lands are covered with sandy and gravelly loam. Toward the mouth of the river the valley becomes contracted and the meadows disappear.

Above Rome the Mohawk flows through a deep gorge in shale rock. From Rome eastward to Little Falls the valley is deeply filled with alluvial deposits and the flood plains on either side become submerged during freshets, thus acting to some extent as storage reservoirs. At Little Falls the river cuts through a rocky gorge, whose walls rise precipitously 500 or 600 feet.

The Erie canal ran parallel to the Mohawk through most of its course below Rome and derived a part of its water-supply from the river. Feeder dams for purposes of diversion for the supply of the Black River and old Erie canals were located on the river at Delta, Rome, Little Falls, Rocky Rift and Rexford. A dam at Oriskany creek also diverted into the canal a portion of the flow of that tributary, as well as waters brought into the Mohawk basin from storage reservoirs located in the upper drainage basin of Chenango river near Hamilton, N. Y. There was also a

diversion at the dam near the mouth of Schoharie creek, the largest tributary of the Mohawk.

The new Barge canal, now nearing completion by the State of New York, will utilize by canalization the greater portion of the river below Utica. The Barge canal leaves the north fork of the Mohawk river just above its junction with the Hudson river, where a low navigable surface at Elev. 15.2 is maintained by the Federal dam at Troy. The canal rises through five locks and reenters the river just above the new Crescent dam (dam No. 2), which is a curved concrete structure in two sections with an ogee crest totaling 1,486.2 feet at Elev. 184.0, final closure of which was made May 10, 1915, but by opening head-gates at the west end of the dam, the water-surface was kept below the crest until July 1, 1915, when gates were closed and first flow over the completed crest occurred. The head-gates were again opened from Oct. 11 to Dec. 4, 1915. This dam is about three-quarters of a mile above and is reached by the pool formed by the power dam of the Cohoes Company at Cohoes, the fixed crest of which was raised from an average elevation of 154.2 to about Elev. 157.0 in the summer of 1914. The pool formed by the Crescent dam extends about 10.2 miles upstream to the Vischer Ferry dam and submerges the old Dunsbach Ferry dam located about 4.6 miles upstream and which was partially removed during August, 1912.

The new Vischer Ferry dam (dam No. 3), final closure of which was made June 9, 1913, is a concrete structure with an ogee crest having a broken trace composed of three straight sections, of lengths, from south to north, of 735.2, 681.8 and 501.7, a total of 1,918.7 feet. The middle section is a low weir on an island cut down to Elev. 210.0 above the weir and somewhat lower below. This dam maintains a pool with a low navigable surface at crest elevation 211.0 about 10.9 miles in length and submerges the old State dam at Rexford about 4.3 miles upstream, which had a crest 675 feet long at Elev. 209.5.

Between Schenectady and St. Johnsville there are eight movable dams of the Boulé gate and bridge type. During the winter and during flood stages the gates and their supports are raised, leaving, except for either one or two piers, a channel entirely unobstructed and of an area practically equivalent to that existing

at that point before the construction of the dam. The location of these dams, clear span of openings, elevation of sill and pool, *i. e.* low water-surface to be maintained above dam during navigation season, and length of canalized pool above are as follows:

Scotia dam (No. 4.) about three miles above the N. Y. C. R. R. bridge at Schenectady, openings 150-210-150 feet, sill Elev. 209.0, pool Elev. 225.0, 5 miles long.

Rotterdam dam (No. 5) about one and nine-tenths miles above the Boston & Maine bridge or Rotterdam Junction, openings 150-210-150 feet, sill Elev. 220.0, pool Elev. 240.0, 6 miles long.

Cranesville dam (No. 6) three and two-tenths miles below the Amsterdam-South Amsterdam highway bridge, openings 150-180-150 feet, sill Elev. 235.0, pool Elev. 255.0, 4.3 miles long.

Amsterdam dam (No. 7) one and one-tenth miles above the Amsterdam-South Amsterdam highway bridge, openings 180-210-180 feet, sill Elev. 247.0, pool Elev. 267.0, 4.3 miles long.

Tribes Hill dam (No. 8) just above the Tribes Hill-Fort Hunter highway bridge and just below the mouth of Schoharie creek, openings 240-240 feet, sill Elev. 262.0, pool Elev. 278.0, 9.6 miles long.

Yosts dam (No. 9) nine-tenths of a mile below the village of Yosts, openings 180-180 feet, sill Elev. 268.0, pool Elev. 286.0, 7.8 miles long.

Canajoharie dam (No. 10) about one-third mile above the Canajoharie-Palatine Bridge highway bridge, openings 210-210 feet, sill Elev. 276.0, pool Elev. 294.0, 3.4 miles long.

Fort Plain dam (No. 11) four-tenths of a mile above Fort Plain-Nelliston highway bridge, openings 210-210 feet, sill Elev. 284.0, pool Elev. 302.0, 6.6 miles long.

Although the above movable dams had been previously completed and operated to facilitate dredging operations, this portion of the canal was not opened to navigation until May, 1916.

From below new Barge canal lock No. 16, about one and four-tenths miles above St. Johnsville, to above the old Rocky Rift feeder dam the canal follows a land-line. Opposite lock No. 16, at the end of the river dredging, the natural bed of the stream is maintained by the Mindenville retention dam, the crest of

which is 300 feet long and at Elev. 300.5, a foot and a half below the low navigable surface above the Fort Plain dam. The old Rocky Rift feeder dam (No. 12) has been raised from the old fixed crest averaging about Elev. 319.35 to Elev. 322.5, by the addition of a movable crest, consisting of steel trestles and small Boulé gates with a new fixed crest, at Elev. 319.5. The canalized pool above this dam extends to about 3,000 feet below the lower dam at Little Falls, a distance of about 3.7 miles. Castle creek enters the land-line of the Barge canal just above, or west of the Indian Castle guard-gate and flows west through the canal, entering the Mohawk river above the Rocky Rift dam.

The three existing dams at Little Falls are unchanged, the upper, or State dam (No. 13) being used to maintain the canalized river pool at Elev. 363.0 and 3.2 miles in length to Jacksonburg, where the canal enters a land-line.

The canal reenters the river just above the Mohawk street bridge at Herkimer. Immediately below this bridge a new dam (No. 14) has been constructed to retain the canalized pool to the Frankfort retention dam, a distance of 4.6 miles, and that of the land-line from Frankfort to lock No. 19 at Sterling creek at a low navigable surface of Elev. 383.0. The Herkimer dam is a needle dam 126 feet long with a sill at Elev. 374.0, except for 10.5 feet, which is at Elev. 379.0.

Above Frankfort several bends in the river have been cut out to provide room for the land-line to Rome, and the existing bed of the stream is retained by the Frankfort retention dam, located just above the canal terminal spur at Frankfort and about 1,600 feet upstream from the highway bridge over the river on the Dyke road between Frankfort and North Frankfort. This dam is of concrete with an ogee crest, having a broken profile as follows: 41 feet 6 inches at Elev. 381.0, flanked by two sections each 36 feet 9 inches long, at Elev. 386.0. For the passage of flood flows there is a paved crest at Elev. 389.0, 433 feet long at the north end of the concrete structure. At Rome the Mohawk river enters the summit level of the Barge canal over a new retention dam, about 400 feet north of the canal, having a concrete ogee crest 225 feet long at Elev. 427.0, and is diverted eastward along the canal prism for 3.2 miles, leaving it over a concrete

spillway with an ogee crest 225 feet long at pool Elev. 420.0. There is also another and smaller spillway with paved crest 68 feet in length at Elev. 420, about three-quarters of a mile east of where the river enters the canal. The section of the summit level utilized for the river can be cut off from the remaining portions during higher flow periods by the closure of guard-gates at each end.

The water-supply for the Rome summit level of the new canal will to a large extent come from the Mohawk. A high dam has been constructed across the Mohawk at Delta, 6 miles north of Rome, for the purpose of creating a reservoir to store water for the canal. The capacity is 2,750,000,000 cubic feet. This supply will be supplemented by a reservoir of 3,445,000,000 cubic feet capacity on West Canada creek at Hinckley. Hinckley water will be passed down West Canada creek and diverted by a new dam on the site of the old Morgan dam at Trenton Falls through a feeder canal to Nine-Mile creek and thence to the Barge canal.

The principal tributaries of the Mohawk below the source are, successively, Oriskany, West Canada, East Canada and Schoharie creeks.

Drainage areas of MOHAWK RIVER AND TRIBUTARIES

(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
<i>Lansingkill</i>				
Source to junction with West branch.....	29.41	.....	29.41	.....
<i>MOHAWK RIVER</i>				
Source of West branch to junction with East branch.....	19.25	19.25	.....	.....
Source of East branch to junction with West branch.....	15.16	34.41	.....	.....
Junction of East and West branches to and including first large creek to north.....	5.86	40.27	.....	.....
First creek below junction to and including second large creek to north.....	6.08	46.35	.....	.....
Second creek below junction to junction of Lansingkill, Hillside.....	3.40	49.75	49.75	79.16
Junction at Hillside to mouth of Stringer brook..	1.17	.....	.....	80.33
<i>Stringer Brook</i>				
Source to mouth.....	13.43	.....	13.43	93.76
<i>MOHAWK RIVER</i>				
Junction of Stringer brook to mouth of Big brook (Frenchville).....	3.02	.....	.....	96.78

Drainage areas of MOHAWK RIVER AND TRIBUTARIES — *Continued*

(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
<i>Big Brook</i>				
Source to mouth.....	22.86	.....	22.86	119.64
<i>MOHAWK RIVER</i>				
Junction of Big Brook (Frenchville) to State feeder dam at Delta (now submerged).....	16.25	.....	.....	135.89
State feeder dam at Delta to highway bridge below new Delta dam.....	11.97	.....	.....	147.86
Highway bridge below new Delta dam to Ridge Mills dam.....	7.74	.....	.....	155.60
Ridge Mills dam to Floyd Ave. bridge.....	2.59	.....	.....	158.19
Floyd Ave. bridge to State dam at Rome.....	2.55	.....	.....	160.74
State dam at Rome to mouth of Six-Mile creek..	26.40	.....	.....	187.14
<i>Six-Mile Creek (Oneida Co.)</i>				
Source to mouth.....	14.94	.....	14.94	202.08
<i>MOHAWK RIVER</i>				
Mouth of Six-Mile creek to mouth of Nine-Mile creek.....	5.29	.....	.....	207.37
<i>Nine-Mile Creek</i>				
Source to South Trenton.....	19.62	.....	.....	.....
South Trenton to crossing of 500-foot contour....	0.54	26.16	.....	.....
Crossing of 500-foot contour to first bridge above Holland Patent.....	2.49	28.65	.....	.....
First bridge above Holland Patent to first bridge below Holland Patent.....	12.71	41.36	.....	.....
First bridge below Holland Patent to Stittville....	6.12	47.48	.....	.....
Stittville to first bridge below Stittville (Powell's bridge).....	11.59	59.07	.....	.....
Powell's bridge to third bridge below Stittville....	10.34	69.41	.....	.....
Third bridge below Stittville to mouth.....	0.79	70.20	70.20	277.57
<i>MOHAWK RIVER</i>				
Mouth of Nine-Mile creek to mouth of Oriakany creek.....	6.19	.....	.....	283.76
<i>Areas diverted from Chenango river basin *</i>				
Chenango river from source to junction with Eaton brook at Eaton.....	25.25	.....	.....	25.25
Eaton brook from source to Eaton reservoir dam.	9.16	9.16	.....	.....
Eaton reservoir dam to junction with Chenango river at Eaton.....	6.69	15.85	15.85	41.10
Chenango river, junction Eaton brook to head of feeder canal.....	2.99	.....	.....	44.09
Bradley brook from source to Bradley reservoir dam.....	3.04	.....	.....	.....
Bradley reservoir dam to head of feeder canal....	4.57	7.61	.....	.....
Kingsley brook from source to Kingsley reservoir dam.....	5.12	.....	.....	.....
Kingsley reservoir dam to junction, with Bradley brook feeder canal.....	1.75	6.87	14.48	58.57
Header of feeder, Chenango river to junction of feeders, Woodman pond.....	2.04	.....	.....	60.61
Payne brook from source to Madison reservoir dam.....	8.73	.....	.....	.....
Madison reservoir dam to junction of feeders, Woodman pond.....	2.04	10.77	10.77	71.38
Junction of feeders, Woodman pond to junction with Leland pond outlet.....	3.26	.....	.....	74.64
Source, Leland creek to canal reservoir dam.....	6.74	.....	.....	81.38
Junction with Leland pond outlet to natural watershed limits.....	6.53	.....	.....	87.91

* Not included in totals for Mohawk river areas.

Drainage areas of MOHAWK RIVER AND TRIBUTARIES — *Continued*
(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
<i>Oriakany Creek</i>				
Source of Oriakany creek to bridge at Solsville. . .	7.84	.....	.....	.....
Solsville to Oriakany Mills. . .	13.27	21.11	.....	.....
Oriakany Mills to junction with Big Creek, Oneida county (Deansboro). . .	16.54	37.65	.....	.....
Source of Big creek to junction with Oriakany creek (Deansboro). . .	20.32	57.97	.....	.....
Junction with Big creek to Farmers Mills. . .	14.09	72.06	.....	.....
Farmers Mills to Clinton. . .	11.11	83.17	.....	.....
Clinton to Kirkland. . .	4.73	87.90	.....	.....
Kirkland to dam above Clark Mills. . .	5.76	93.66	.....	.....
Dam above Clark Mills to Walesville. . .	9.92	103.58	.....	.....
Walesville to Colemans. . .	36.99	140.57	.....	.....
Colemans to State dam above Oriakany. . .	5.47	146.04	.....	.....
State dam above Oriakany to mouth of Oriakany creek. . .	0.78	146.82	146.82	430.58
MOHAWK RIVER				
Mouth of Oriakany creek to mouth of Sauquoit creek. . .	15.68	.....	.....	446.26
<i>Sauquoit Creek</i>				
Source of Sauquoit creek to Cassville. . .	7.17	.....	.....	.....
Cassville to dam at Clayville. . .	4.71	11.88	.....	.....
Dam at Clayville to dam at Sauquoit. . .	12.54	24.42	.....	.....
Dam at Sauquoit to dam above Chadwick. . .	4.28	28.70	.....	.....
Dam above Chadwick to 700-foot contour at Willowvale. . .	3.72	32.42	.....	.....
700-foot contour at Willowvale to dam at Washington Mills. . .	11.37	43.79	.....	.....
Dam at Washington Mills to dam above New Hartford. . .	2.92	46.71	.....	.....
Dam above New Hartford to dam at Capron. . .	1.52	48.23	.....	.....
Dam at Capron to dam below Capron. . .	2.20	50.43	.....	.....
Dam below Capron to upper dam at New York Mills. . .	0.49	50.92	.....	.....
Upper dam at New York Mills to mouth of Sauquoit creek. . .	14.58	65.50	65.50	511.76
MOHAWK RIVER				
Mouth of Sauquoit creek to Black River R. R. bridge at Utica. . .	13.09	.....	.....	524.85
Black River R. R. bridge at Utica to mouth of Reels creek. . .	2.70	.....	.....	527.55
<i>Reels Creek</i>				
Source to mouth. . .	9.69	.....	9.69	537.24
<i>Ballou Creek</i>				
Source to mouth. . .	4.57	.....	4.57	541.81
MOHAWK RIVER				
Mouth of Ballou creek to mouth of Starch Factory creek. . .	1.99	.....	.....	543.80
<i>Starch Factory Creek</i>				
Source to mouth. . .	7.22	.....	.....	551.02
MOHAWK RIVER				
Mouth of Starch Factory creek to mouth of Sterling creek. . .	30.93	.....	.....	581.95
<i>Sterling Creek</i>				
Source to mouth. . .	19.94	.....	.....	601.89
MOHAWK RIVER				
Mouth of Sterling creek to mouth of Moyer creek. . .	14.85	.....	.....	616.74

Drainage areas of MOHAWK RIVER AND TRIBUTARIES — *Continued*

(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
<i>Moyer Creek</i>				
Source of mouth.....	21.66	.....	.....	638.40
MOHAWK RIVER				
Mouth of Moyer creek to mouth of Steels creek..	7.30	.....	.....	645.70
<i>Steels Creek</i>				
Source to mouth.....	29.54	.....	.....	675.24
MOHAWK RIVER				
Mouth of Steels creek to Mohawk-Herkimer road bridge.....	33.07	.....	.....	708.31
Mohawk-Herkimer road bridge to mouth of West Canada creek.....	7.51	.....	.....	715.82
<i>West Canada Creek *</i>				
Source to mouth.....	583.64	.....	.....	1,299.46
MOHAWK RIVER				
Mouth of West Canada creek to State dam at Little Falls.....	26.07	.....	.....	1,325.53
State dam at Little Falls to Gilberts dam.....	4.20	.....	.....	1,329.73
Gilberts dam to Rocky Rift feeder dam.....	11.82	.....	.....	1,341.55
<i>Crum Creek</i>				
Source to mouth.....	11.40	.....	.....	1,352.95
MOHAWK RIVER				
Mouth of Crum creek (feeder dam) to mouth of Nowadaga creek.....	0.27	.....	.....	1,353.22
<i>Nowadaga Creek</i>				
Source to mouth.....	32.43	.....	.....	1,385.65
MOHAWK RIVER				
Mouth of Nowadaga creek to mouth of East Canada creek.....	4.65	.....	.....	1,390.30
<i>East Canada Creek *</i>				
Source to mouth.....	a 281.81	.....	.....	a 1,672.11
MOHAWK RIVER				
Mouth of East Canada creek to mouth of East Crum creek.....	0.59	.....	.....	a 1,672.70
<i>East Crum Creek</i>				
Source to mouth.....	15.55	.....	.....	a 1,688.25
<i>Mohawk River</i>				
Mouth of East Crum creek to mouth of Timmerman creek.....	3.31	.....	.....	a 1,691.56
<i>Timmerman Creek</i>				
Source to mouth.....	16.38	.....	.....	a 1,707.94
MOHAWK RIVER				
Mouth of Timmerman creek to mouth of Zimmerman creek.....	0.52	.....	.....	a 1,708.46
<i>Zimmerman Creek</i>				
Source to mouth.....	14.63	.....	.....	a 1,723.09
MOHAWK RIVER				
Mouth of Zimmerman creek to St. Johnsville bridge.....	0.54	.....	.....	a 1,723.63
St. Johnsville bridge to mouth of Garoga creek....	12.05	.....	.....	a 1,735.68

* For subareas, see separate table following. a Corrected for error of 0.2 noted in Report of State Engineer and Surveyor for 1916, Vol. II, pages 322 and 323.

Drainage areas of MOHAWK RIVER AND TRIBUTARIES — Continued
(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
<i>Garoga Creek</i>				
Source of Garoga creek to foot of East Garoga lake.	10.44	.....	.....	.....
Foot of East Garoga lake to foot of pond, New Kirk Mills	3.18	13.62	.....	.....
Foot of pond, Newkirk Mills, to junction with Peck lake outlet.	9.11	22.73	22.73	.....
Source to Woodworth lake to foot of Peck lake.	16.29	.....	.....	.....
Foot of Peck lake to junction with Garoga creek.	4.52	20.81	43.54	.....
Junction with Peck lake outlet to Rockwood.	7.20	.....	50.74	.....
Rockwood to Garoga.	2.19	.....	52.93	.....
Garoga to mouth of Sprite creek.	4.99	.....	57.92	.....
Source of Sprite creek to mouth.	14.13	.....	72.05	.....
Mouth of Sprite creek to fourth highway bridge above mouth.	13.19	.....	85.24	.....
Fourth highway bridge above mouth to second highway bridge above mouth.	7.78	.....	93.02	.....
Second highway bridge above mouth to first highway bridge above mouth.	1.17	.....	94.19	.....
First highway bridge above mouth to mouth of Garoga creek.	0.51	.....	94.70	a 1,830.38
MOHAWK RIVER				
Mouth of Garoga creek to Fort Plain.	12.70	.....	.....	a 1,843.08
Fort Plain to Canajoharie.	67.92	.....	.....	a 1,911.00
<i>Canajoharie Creek</i>				
Source to mouth.	69.22	.....	69.22	a 1,980.22
MOHAWK RIVER				
Canajoharie to Sprakers.	9.94	.....	.....	a 1,990.16
<i>Flat Creek</i>				
Source to mouth.	49.11	.....	49.11	a 2,039.27
MOHAWK RIVER				
Sprakers to mouth of Yatesville creek.	17.56	.....	.....	a 2,056.83
<i>Yatesville Creek</i>				
Source to mouth.	12.71	.....	12.71	a 2,069.54
MOHAWK RIVER				
Mouth of Yatesville creek to mouth of Cayadutta creek.	24.48	.....	.....	a 2,094.02
<i>Cayadutta Creek</i>				
Source of Cayadutta creek to Johnstown (Main street bridge).	35.16	.....	.....	.....
Johnstown (Main street bridge) to dam above Sammons ville.	2.84	38.00	.....	.....
Dam above Sammons ville to dam at Sammons ville.	3.53	41.53	.....	.....
Dam at Sammons ville to dam two miles below Sammons ville.	16.44	57.97	.....	.....
Dam below Sammons ville to mouth of Cayadutta creek.	5.06	63.03	63.03	a 2,157.05
MOHAWK RIVER				
Mouth of Cayadutta creek to Fultonville bridge.	0.68	.....	.....	a 2,157.73
Fultonville bridge to mouth of Schoharie creek.	47.39	.....	.....	a 2,205.12
<i>Schoharie Creek *</i>				
Source to mouth.	b 929.88	.....	.....	b 3,135.00

* For subareas, see table following. a Corrected for error of 0.2 noted in Report of State Engineer and Surveyor for 1916, Vol. II, pages 322 and 325. b These areas have been revised as the result of a joint determination of drainage areas of Schoharie creek, based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer, and are also corrected for the error of 0.2 noted in Report of State Engineer and Surveyor for 1916, Vol. II, pages 322 and 325.

Drainage areas of MOHAWK RIVER AND TRIBUTARIES — *Concluded*

(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
MOHAWK RIVER				
Mouth of Schoharie creek to mouth of Chuctanunda creek (Amsterdam).....	31.54	.....	.....	b 3,166.54
<i>South Chuctanunda Creek</i>				
Source to Minaville.....	22.62	22.62	.....	.....
Minaville to mouth.....	10.41	33.03	33.03	b 3,199.57
<i>North Chuctanunda Creek</i>				
Source to dam, Amsterdam reservoir.....	8.76	8.76	.....	.....
Dam, Amsterdam reservoir, to Hagaman.....	20.77	29.53	.....	.....
Hagaman to Rockton.....	4.11	33.64	.....	.....
Rockton to mouth.....	5.58	39.22	39.22	b 3,298.79
MOHAWK RIVER				
Amsterdam to Hoffman Ferry.....	43.59	.....	.....	b 3,282.38
Hoffman Ferry to Scotia bridge.....	52.44	.....	.....	b 3,334.82
Scotia bridge to mouth of Alplaus kill.....	24.87	.....	.....	b 3,359.19
<i>Alplaus Kill</i>				
Source to mouth.....	55.80	.....	55.80	b 3,414.99
MOHAWK RIVER				
Mouth of Alplaus kill to Rexford Flats dam.....	1.23	.....	.....	b 3,416.22
Rexford Flats dam to Vischer Ferry dam.....	10.98	.....	.....	b 3,427.20
Vischer Ferry dam to Dunsbach Ferry dam.....	53.20	.....	.....	b 3,480.40
Dunsbach Ferry dam to Crescent aqueduct.....	10.25	.....	.....	b 3,490.65
Crescent aqueduct to Crescent dam.....	2.68	.....	.....	b 3,493.33
Crescent dam to Cohoes Co.'s dam.....	0.61	.....	.....	b 3,493.94
Cohoes Co.'s dam to mouth of Mohawk river.....	12.68	.....	.....	b 3,506.62

b These areas have been revised as the result of a joint determination of drainage areas of Schoharie creek, based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer, and are also corrected for the error of 0.2 noted in Report of State Engineer and Surveyor for 1915, Vol. II, pages 327 and 335.

Drainage areas of WEST CANADA CREEK

(From U. S. G. S. topographic maps)

DIVISIONS OF AREA	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
WEST CANADA CREEK				
Source to outlet of Mud lake.....	18.05	.....	.....	18.05
Outlet of Mud lake to Swanson dam.....	28.77	.....	.....	46.82
Swanson dam to Honnedaga brook.....	46.82	.....	.....	93.64
<i>Honnedaga Brook</i>				
Honnedaga lake above outlet.....	5.40	.....	.....	.....
Lake to mouth.....	11.90	.....	17.30	110.94
WEST CANADA CREEK				
Honnedaga brook to South branch.....	30.46	.....	.....	141.40
<i>South Branch, West Canada Creek</i>				
Source to Mountain House.....	34.40	.....	.....	.....
Mountain House to mouth.....	19.25	.....	53.65	195.05

Drainage areas of WEST CANADA CREEK — *Continued*

(From U. S. G. S. topographic maps)

DIVISIONS OF AREA	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
WEST CANADA CREEK				
South branch to Four-Mile brook (Wilmurt bridge).....	2.58	.....	.....	197.63
Four-Mile Brook				
Source to mouth.....	.....	.....	26.17	223.80
WEST CANADA CREEK				
Four-Mile brook to Black creek.....	36.92	.....	.....	260.72
Black Creek				
Source through Hall Vly.....	8.40	.....	.....	.....
Hall Vly to Bennett's mill (first bridge above Gray).....	16.30	.....	94.70	.....
Bennett's mill to Gray.....	4.50	.....	29.20	.....
Gray to North branch (first bridge below Gray).....	3.00	.....	32.20	.....
North Branch, Black Creek				
Source to Bull Hill road (contour 1,520).....	6.80	.....	.....	.....
Bull Hill road to Mill creek.....	4.00	10.80	.....	.....
Mill creek:				
Source through Cranberry lake and swamp.....	11.00	.....	.....	.....
Foot of Cranberry swamp to mouth.....	6.20	17.20	.....	.....
Total, North branch, Black creek, to Mill creek, inclusive.....	.....	28.00	.....	.....
North Branch, Black Creek				
Mill creek to mouth.....	0.85	28.85	61.05	.....
Black Creek				
North branch to Mounts creek.....	0.17	.....	61.22	.....
Mounts Creek				
Source to Gray-Wilmurt road (Radley).....	13.25	.....	.....	.....
Gray-Wilmurt road to mouth.....	2.10	15.35	76.67	.....
Black Creek				
Mounts creek to second bridge below Gray.....	1.55	.....	78.12	.....
Second bridge to third bridge below Gray.....	5.65	.....	83.77	.....
Third bridge to fourth bridge below Gray.....	12.35	.....	96.12	.....
Fourth bridge to Pardeville bridge c.....	4.00	.....	100.12	.....
Pardeville bridge to Grant c.....	1.95	.....	102.07	.....
Grant to West Canada creek c.....	1.15	.....	103.22	363.94
WEST CANADA CREEK				
Black creek to Twin Rock bridge c.....	0.50	.....	.....	364.44
Twin Rock bridge to Hinckley dam c.....	8.50	.....	.....	372.94
Hinckley dam to Prospect.....	2.00	.....	.....	374.94
Prospect to Trenton Falls.....	0.90	.....	.....	375.84
Trenton Falls to Steuben creek.....	6.20	.....	.....	382.04
Steuben Creek				
Source to mouth.....	.....	.....	52.30	434.34
WEST CANADA CREEK				
Steuben creek to Poland (first bridge below).....	35.80	.....	.....	470.14
Poland to Newport.....	10.00	.....	.....	480.14
Newport to Middleville.....	47.20	.....	.....	527.34
Middleville to Kast bridge.....	47.50	.....	.....	574.84
Kast bridge to mouth.....	8.80	.....	.....	583.64

c Creek drowned out by reservoir.

Drainage areas of EAST CANADA CREEK
(From U. S. G. S. topographic maps)

DIVISIONS OF AREA	AREA IN SQUARE MILES			
	Place to place	Sub-total	Branch total	Total
EAST CANADA CREEK				
Above Oregon.....	40.13	.....	.....	40.13
Oregon to junction with North creek.....	10.42	.....	.....	50.55
<i>North Creek</i>				
Source to junction with East Canada creek.....	18.60	.....	.....	69.15
EAST CANADA CREEK				
Junction with North creek to junction with Trammel creek.....	8.63	.....	.....	77.78
<i>Trammel Creek</i>				
Source to junction with East Canada creek.....	12.04	.....	.....	89.82
EAST CANADA CREEK				
Junction with Trammel creek to junction with Ayers creek (Stratford).....	0.20	.....	.....	90.02
<i>Ayers Creek</i>				
Source to junction with East Canada creek.....	13.63	.....	.....	103.65
EAST CANADA CREEK				
Junction with Ayers creek (Stratford) to Emmonsburg.....	8.05	.....	.....	111.70
Emmonsburg to junction with Big Sprite creek...	15.68	.....	.....	127.38
<i>Big Sprite Creek</i>				
Source to Stewart landing.....	40.90	.....	.....	.....
Stewart landing to junction with East Canada creek.....	7.87	.....	48.77	176.15
EAST CANADA CREEK				
Junction with Big Sprite creek to junction with Middle Sprite creek.....	3.70	.....	.....	179.85
<i>Middle Sprite Creek</i>				
Source to junction with East Canada creek.....	22.65	.....	.....	202.50
EAST CANADA CREEK				
Junction with Middle Sprite creek to junction with Spruce creek.....	0.20	.....	.....	202.70
<i>Spruce Creek</i>				
Source to dam at Diamond Hill.....	36.20	36.20	.....	.....
Dam at Diamond Hill to Salisbury.....	13.08	49.28	.....	.....
Salisbury to junction with East Canada creek....	1.20	.....	50.48	a 253.18
EAST CANADA CREEK				
Junction with Spruce creek to lower bridge, Dolgeville.....	0.60	.....	.....	a 253.78
Lower bridge, Dolgeville, to High falls.....	3.64	.....	.....	a 257.42
High falls to junction with Gillett creek.....	0.84	.....	.....	a 258.26
<i>Gillett Creek</i>				
Source to junction with East Canada creek.....	10.92	.....	.....	a 269.18
EAST CANADA CREEK				
Junction with Gillett creek to Ingham Mills.....	8.73	.....	.....	a 277.91
Ingham Mills to Beardslee Falls.....	3.60	.....	.....	a 281.51
Beardslee Falls to mouth.....	0.30	.....	.....	a 281.81

a Corrected for error of 0.2 noted in Report of State Engineer and Surveyor for 1916, Vol. II, pages 322 and 325.

Drainage areas of SCHOHARIE CREEK *
(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES	
	Place to place	Total
Source to Pratt Rocks, about 1½ miles above Prattville highway bridge	225.89	225.89
Pratt Rocks to Prattville gage at highway bridge, Prattville.....	10.23	236.12
Prattville gage to Devasego Falls, at falls.....	6.84	242.96
Devasego Falls to Gilboa, at power dam.....	70.75	313.71
Gilboa to North Blenheim, at old dam.....	88.85	402.56
North Blenheim to Middleburg, at highway bridge.....	129.01	531.57
Middleburg to Schoharie Junction, at D. & H. R. R. bridge.....	284.13	815.70
Schoharie Junction to Sloansville, at highway bridge.....	16.35	832.05
Sloansville to Esperance, at highway bridge.....	43.77	875.82
Esperance to Burtonville, at power dam, about ½ mile above highway bridge.....	10.87	886.69
Burtonville to Florida, just below fordway.....	19.43	906.12
Florida to Wellsville, about ½ mile above highway bridge.....	7.95	914.07
Wellsville to Mill Point, about ½ mile below highway bridge.....	6.86	920.43
Mill Point to Fort Hunter, at Fort Hunter feeder dam.....	9.45	929.88

* This table is the result of a joint determination of drainage areas of Schoharie creek, based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

DELTA RESERVOIR

This station, established April, 1913, is located at the dam of the Delta reservoir on the Mohawk river. The gage is a concrete staff on the substructure of the gate-house. This station indicates the surface of the Delta reservoir, constructed in connection with the Barge canal work to supply the Rome summit level. It is read twice daily—at 9 A. M. and 4 P. M.—to tenths. The dam is a concrete structure with an ogee crest 300 feet long at elevation 550.0. There are four 60-inch pipes to pass water downstream and a 30-inch pipe line to supply water to the Black River canal. The reservoir at crest level has an area of about $4\frac{1}{3}$ square miles and a capacity of 2,750,000,000 cubic feet.

Daily elevation of water-surface (B. C. datum) of DELTA RESERVOIR AT DELTA DAM, for the year ended June 30, 1917. William Manner, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	546.75	541.75	538.6	536.2	537.15	546.2	540.55	530.5	527.8	549.15	549.6	549.3
2.....	546.45	541.65	538.5	536.15	537.3	546.45	539.95	530.35	528.1	551.3	549.75	549.55
3.....	546.6	541.55	538.4	535.95	537.4	546.65	539.15	530.3	528.2	552.5	550.0	549.7
4.....	546.45	541.5	538.3	535.85	537.55	546.7	538.2	530.05	528.3	551.8	550.0	549.8
5.....	546.25	541.4	538.2	535.8	537.89	547.45	537.35	529.95	528.4	551.4	550.0	549.8
6.....	545.9	541.25	538.05	535.7	538.05	547.95	537.05	529.85	528.4	551.2	550.2	549.8
7.....	545.5	541.15	537.95	535.55	538.1	549.2	536.5	529.7	528.4	551.15	550.2	549.9
8.....	545.25	541.1	537.9	535.35	538.2	548.35	535.95	529.6	528.4	551.0	550.2	550.45
9.....	545.05	541.05	537.8	535.05	538.2	548.55	535.15	529.85	528.35	550.9	550.1	550.6
10.....	544.75	541.0	537.7	534.95	538.65	546.6	534.35	529.25	528.3	550.8	549.95	550.55
11.....	544.45	540.9	537.6	534.8	538.75	548.55	533.4	529.0	528.3	550.7	549.75	551.25
12.....	544.15	540.8	537.45	534.75	538.9	548.25	532.4	528.95	528.8	550.8	549.55	551.05
13.....	544.1	540.75	537.1	534.7	538.9	548.15	532.05	528.85	529.45	550.75	549.85	550.8
14.....	544.5	540.65	536.7	535.1	539.0	547.85	531.85	528.65	528.05	550.45	549.15	550.6
15.....	544.35	540.55	536.55	535.3	539.05	547.75	531.75	528.45	528.0	550.3	548.95	550.55
16.....	544.05	540.45	536.9	535.2	539.1	547.2	531.75	528.25	528.65	550.15	548.75	550.5
17.....	543.75	540.35	536.75	535.15	539.15	546.8	531.95	528.1	528.85	550.05	548.45	550.45
18.....	543.45	540.2	536.7	535.1	539.2	546.2	532.0	528.05	528.0	550.0	548.25	550.4
19.....	543.25	540.05	536.6	535.15	539.2	545.75	532.0	527.95	528.0	550.15	548.05	550.3
20.....	543.1	539.95	536.45	535.5	539.3	545.3	531.95	527.65	528.0	550.5	547.95	550.3
21.....	542.95	539.85	536.25	535.65	539.3	544.9	531.75	527.45	528.0	550.75	547.9	550.4
22.....	542.75	539.65	536.2	537.0	539.2	544.35	531.7	527.25	528.0	550.55	547.8	550.35
23.....	542.65	539.55	536.25	537.05	539.15	543.95	531.55	527.05	528.15	550.45	547.8	550.8
24.....	542.45	539.45	536.2	537.1	541.05	543.45	531.35	527.00	528.05	550.35	547.65	550.25
25.....	542.25	539.35	536.05	537.1	541.75	542.95	531.05	526.75	528.55	550.25	548.05	550.35
26.....	542.1	539.25	535.85	537.1	541.95	542.55	531.0	526.6	528.35	550.1	548.1	550.3
27.....	542.0	539.1	535.65	537.1	542.15	542.05	530.85	526.6	541.9	550.0	548.0	550.3
28.....	541.95	538.95	535.45	537.05	542.25	541.55	530.65	527.1	545.25	549.95	547.9	550.3
29.....	541.95	538.95	535.45	537.0	542.7	541.05	530.45	.....	546.5	549.85	548.45	550.4
30.....	541.9	538.85	535.95	537.0	546.3	541.0	530.3	.....	547.3	549.7	548.95	550.8
31.....	541.8	538.7	.....	537.0	.....	541.0	530.5	.....	548.0	.....	549.15	.....

MOHAWK RIVER ABOVE DAM, RIDGE MILLS

This station, established May 3, 1904, is located above the dam across the Mohawk river at Ridge Mills, about $2\frac{1}{4}$ miles upstream from Rome. The gage is a staff attached to the timber abutment of the dam on the left bank and is about 20 feet above the crest. The gage is read once daily—at about 7 A. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER ABOVE DAM AT RIDGE MILLS, for the year ended June 30, 1917. Daniel Brown, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	466.5	466.0	466.0	466.0	466.2	466.1	466.7	466.1	466.1	466.2	466.5	465.8
2.....	466.5	466.0	466.0	466.0	466.2	466.1	466.7	466.1	466.1	466.8	466.5	465.8
3.....	466.5	466.0	466.0	466.0	466.2	466.1	467.1	466.1	466.0	466.2	466.5	465.8
4.....	466.5	466.0	466.0	466.0	466.2	466.1	467.1	466.1	a	466.4	466.5	465.8
5.....	466.5	466.0	466.0	466.0	466.2	466.2	467.1	466.1	a	467.9	466.5	466.1
6.....	466.5	466.0	466.0	466.2	466.2	466.2	467.0	466.1	a	467.5	466.5	466.1
7.....	466.5	466.0	466.0	466.2	466.1	466.1	467.1	466.1	a	467.5	466.5	466.2
8.....	466.5	466.0	466.0	466.2	466.1	466.1	467.1	466.1	a	467.0	466.5	466.4
9.....	466.5	466.0	466.0	466.0	466.1	466.2	467.1	466.0	a	466.9	466.5	466.7
10.....	466.5	466.0	466.0	466.0	466.1	466.9	467.1	466.0	a	466.7	466.5	466.7
11.....	466.5	466.0	465.9	466.0	466.1	466.9	467.0	466.0	466.0	466.7	466.5	467.8
12.....	466.5	466.0	465.9	466.0	466.1	466.5	467.0	466.0	466.1	466.6	466.5	467.6
13.....	466.5	466.0	466.2	466.0	466.1	466.1	466.2	466.0	466.1	466.6	466.5	467.2
14.....	466.5	466.0	466.4	466.1	466.1	466.8	466.5	466.0	466.1	466.8	466.4	466.7
15.....	466.5	466.0	466.0	466.0	466.1	466.1	466.5	466.0	466.1	466.6	466.4	466.6
16.....	466.5	466.0	466.0	466.0	466.1	466.8	466.2	466.0	466.1	466.5	466.4	466.5
17.....	466.5	466.0	466.0	466.0	466.1	466.8	466.1	466.0	466.1	466.5	466.4	466.5
18.....	466.5	466.0	466.0	466.0	466.1	466.8	466.1	466.0	466.1	466.5	466.4	466.4
19.....	466.5	466.0	466.0	466.0	466.2	466.8	466.2	466.0	466.1	466.5	466.2	466.3
20.....	466.2	466.0	466.0	466.0	466.1	466.8	466.2	466.0	466.1	466.6	466.2	466.2
21.....	466.2	466.0	466.0	466.0	466.1	466.8	466.2	466.0	466.1	467.0	466.1	466.3
22.....	466.2	466.0	466.0	466.0	466.1	466.8	466.1	466.0	466.1	466.9	466.2	466.3
23.....	466.2	466.0	466.0	466.1	466.1	466.8	466.1	466.0	466.1	466.7	466.2	466.2
24.....	466.2	466.0	466.2	466.1	466.2	466.8	466.1	466.0	466.3	466.7	466.2	466.2
25.....	466.2	466.0	466.2	466.1	466.2	466.8	466.1	466.0	466.3	466.6	466.2	466.2
26.....	466.2	466.0	466.2	466.1	466.1	466.8	466.1	466.1	466.3	466.5	466.2	466.2
27.....	466.2	466.0	466.2	466.1	466.1	466.8	466.1	466.1	466.3	466.4	466.2	466.2
28.....	466.0	466.0	466.2	466.1	466.2	466.7	466.1	466.1	466.1	466.4	466.2	466.2
29.....	466.0	466.0	466.2	466.1	466.2	465.8	466.1	.....	466.0	466.4	466.3	466.4
30.....	466.0	466.0	466.2	466.1	466.2	465.8	466.1	.....	466.0	466.4	466.2	466.9
31.....	466.0	466.0	.....	466.1	.....	466.7	466.1	.....	466.0	.....	465.8	.....

a No record.

MOHAWK RIVER BELOW DAM, RIDGE MILLS

This station, established May 3, 1904, is located below the dam across the Mohawk river at Ridge Mills, about $2\frac{1}{4}$ miles above Rome. The gage is a staff located on the lower end of the timber cribbing below the dam and is read once daily—at about 7 A. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER BELOW DAM AT RIDGE MILLS, for the year ended June 30, 1917. Daniel Brown, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	459.9	459.4	459.4	459.5	459.7	459.5	460.0	459.4	459.5	459.5	459.7	a
2	459.9	459.4	459.4	459.5	459.7	459.5	460.0	459.4	459.5	460.2	459.7	a
3	459.9	459.4	459.4	459.5	459.7	459.5	460.6	459.4	459.4	463.2	459.7	459.1
4	459.9	459.4	459.4	459.5	459.7	459.5	460.6	459.4	a	461.7	459.7	459.1
5	459.9	459.4	459.4	459.5	459.7	459.5	460.5	459.4	a	461.2	459.7	459.4
6	459.9	459.4	459.4	459.6	459.7	459.5	460.0	459.4	a	460.9	459.7	459.4
7	459.9	459.4	459.4	459.6	459.7	459.5	460.4	459.4	a	460.9	459.7	459.4
8	459.9	459.4	459.4	459.6	459.6	459.4	460.5	459.4	a	460.6	459.7	459.6
9	459.9	459.4	459.4	459.5	459.5	459.5	460.5	459.3	a	460.3	459.7	460.0
10	459.9	459.4	459.4	459.5	459.5	460.2	460.5	459.3	a	459.9	459.7	460.0
11	459.9	459.4	459.3	459.5	459.5	460.2	460.4	459.3	459.4	459.7	459.7	461.2
12	459.9	459.4	459.3	459.5	459.5	459.9	460.2	459.4	459.5	459.8	459.7	461.0
13	459.9	459.4	459.6	459.5	459.5	459.4	459.4	459.4	459.5	459.8	459.7	461.0
14	459.9	459.4	459.8	459.6	459.4	460.1	459.7	459.4	459.5	460.2	459.7	461.0
15	459.9	459.4	459.5	459.5	459.4	459.5	459.9	459.4	459.4	459.8	459.7	460.9
16	459.9	459.4	459.5	459.5	459.4	460.2	459.5	459.4	459.4	459.7	459.7	460.8
17	459.9	459.4	459.4	459.5	459.4	460.2	459.4	459.4	459.4	459.7	459.7	459.7
18	459.9	459.4	459.4	459.5	459.4	460.2	459.4	459.4	459.4	459.7	459.7	459.6
19	459.9	459.4	459.4	459.5	459.5	460.2	459.5	459.4	459.4	459.7	459.5	459.6
20	459.6	459.4	459.4	459.5	459.4	460.2	459.4	459.4	459.4	459.9	459.5	459.6
21	459.6	459.4	459.4	459.5	459.4	460.2	459.4	459.4	459.4	460.3	459.5	459.6
22	459.6	459.4	459.4	459.5	459.4	460.2	459.4	459.4	459.4	460.3	459.5	459.6
23	459.6	459.4	459.4	459.6	459.4	460.2	459.4	459.4	459.4	459.9	459.5	459.5
24	459.6	459.4	459.6	459.6	459.5	460.2	459.4	459.4	459.6	459.9	459.5	459.6
25	459.6	459.4	459.6	459.6	459.5	460.2	459.4	459.4	459.6	459.8	459.5	459.6
26	459.6	459.4	459.6	459.6	459.4	460.2	459.4	459.5	459.5	459.7	459.5	459.6
27	459.6	459.4	459.6	459.6	459.4	460.2	459.4	459.5	459.5	459.7	459.5	459.6
28	459.4	459.4	459.6	459.6	459.5	459.7	459.4	459.5	459.4	459.7	459.5	459.6
29	459.4	459.4	459.6	459.6	459.6	459.0	459.4	.....	459.2	459.6	459.4	459.8
30	459.4	459.4	459.6	459.6	459.6	459.0	459.4	.....	459.2	459.6	459.5	460.4
31	459.4	459.4	.....	459.6	.....	460.0	459.4	.....	459.2	.....	459.1	.....

a No record.

MOHAWK RIVER ABOVE STATE DAM, ROME

This station, established May 3, 1904, is located about 100 feet above the old State dam at Rome. The gage, a staff secured to an elm tree at the head of the Erie canal feeder, gives the elevation of water-surface above the dam. It is read once daily—at 8 A. M.—to tenths, the hundredths in the table being due to the datum of the gage.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER ABOVE STATE DAM AT ROME, for the year ended June 30, 1917. John Phillips, Observer

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	432.23	431.23	431.63	431.93	431.73	431.63	431.93	432.03	431.83	431.93	432.43	432.03
2	432.23	431.33	431.63	431.83	431.63	431.93	432.33	432.03	431.93	432.03	432.53	432.03
3	432.23	431.53	431.63	431.73	431.63	432.03	432.73	431.93	432.03	432.03	432.43	432.13
4	432.33	431.73	431.63	431.53	431.63	431.93	432.73	431.93	431.83	434.43	432.53	432.03
5	432.33	431.73	431.73	431.43	431.73	432.03	432.63	432.13	431.83	432.03	432.73	432.03
6	432.33	431.73	431.73	431.43	431.63	432.03	432.73	432.03	431.83	432.73	432.73	432.13
7	432.33	431.73	431.63	431.43	431.63	431.93	432.63	431.83	431.73	432.73	432.53	432.23
8	432.33	431.63	431.53	431.43	431.63	432.03	432.63	431.93	431.83	432.53	432.43	432.23
9	432.33	431.63	431.53	431.43	431.53	432.03	432.53	432.03	431.93	432.93	432.33	432.33
10	432.23	431.73	431.53	431.33	431.53	432.03	432.43	431.93	431.83	432.53	432.33	432.33
11	432.23	431.63	431.53	431.33	431.53	432.23	432.33	431.83	431.93	432.13	432.43	432.73
12	432.33	431.73	431.53	431.33	431.63	432.53	432.33	431.83	431.93	432.13	432.33	432.43
13	432.33	431.73	431.73	431.43	431.63	432.53	432.33	431.73	431.83	432.03	432.33	432.03
14	432.33	431.73	431.93	431.43	431.53	432.53	432.43	431.72	431.83	432.03	432.43	432.53
15	432.23	431.63	431.93	431.43	431.53	432.63	432.33	431.93	431.93	432.03	432.43	432.33
16	432.23	431.63	432.03	431.33	431.73	432.33	432.33	432.03	431.93	432.03	432.33	432.23
17	432.23	431.63	431.93	431.33	431.73	432.33	432.13	431.93	432.03	431.93	432.33	432.23
18	432.33	431.53	431.83	431.43	432.63	432.33	431.93	432.03	432.13	432.33	432.33	432.23
19	432.33	431.53	431.83	431.53	431.63	432.33	431.73	431.93	432.03	432.03	432.33	432.13
20	432.13	431.53	431.73	431.73	431.53	432.43	431.73	431.83	431.93	432.13	432.13	432.23
21	431.93	431.53	431.63	431.83	431.53	432.23	431.93	431.83	431.93	432.13	432.13	432.13
22	431.73	431.63	431.63	431.83	431.63	432.43	431.83	431.93	431.93	432.63	432.23	432.03
23	431.53	431.53	431.53	431.83	431.63	432.43	431.83	431.83	431.83	432.53	432.23	432.03
24	431.43	431.73	431.53	431.73	431.73	432.23	431.93	431.83	432.13	432.63	432.33	432.13
25	431.33	431.63	431.53	431.63	431.73	432.23	431.83	432.73	432.13	432.63	432.23	432.13
26	431.33	431.63	431.63	431.43	431.83	432.53	431.83	431.83	432.23	432.53	432.13	432.03
27	431.33	431.73	431.63	431.43	431.73	432.53	431.93	432.03	432.23	432.63	432.13	432.13
28	431.33	431.63	431.73	431.53	431.73	432.53	431.63	431.93	432.13	432.63	432.13	432.13
29	431.33	431.63	431.83	431.63	431.63	432.43	431.83	.....	431.93	432.33	432.23	432.23
30	431.23	431.73	431.93	431.63	431.63	432.43	431.93	.....	431.93	432.33	432.33	432.43
31	431.23	431.73	.....	431.73	.....	432.23	431.83	.....	431.93	.....	432.03	.....

MOHAWK RIVER BELOW STATE DAM, ROME

This station, established May 3, 1904, is located at the old State dam at Rome. The gage, formerly a chain gage, now consists of a staff secured to the right abutment of the dam below the crest. It is read once daily—at 8 A. M.—to tenths, the hundredths in the table being due to the datum of the gage.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER BELOW STATE DAM AT ROME, for the year ended June 30, 1917. John Phillips, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	427.76	428.96	427.36	427.66	427.26	427.16	427.66	427.76	427.46	427.66	428.16	427.76
2.....	427.76	427.06	427.36	427.56	427.16	427.66	428.26	427.66	427.56	428.66	428.16	427.66
3.....	427.76	427.26	427.36	427.46	427.16	427.66	428.66	427.66	427.66	430.96	428.16	427.76
4.....	427.96	427.46	427.36	427.26	427.16	427.56	428.66	427.66	427.56	430.16	428.26	427.76
5.....	427.86	427.46	427.46	427.16	427.26	427.56	428.66	428.86	427.56	429.66	428.46	427.86
6.....	427.96	427.46	427.46	427.16	427.16	427.66	428.76	427.76	427.56	429.46	428.46	427.86
7.....	427.86	427.46	427.36	427.16	427.16	427.56	428.66	427.56	427.46	429.46	428.26	427.96
8.....	427.86	427.36	427.26	427.16	427.16	427.56	428.66	427.56	427.56	428.76	428.16	428.06
9.....	427.86	427.36	427.26	427.16	427.06	427.66	428.56	427.56	427.66	428.56	428.16	428.06
10.....	427.76	427.46	427.26	427.06	427.06	427.66	428.46	427.56	427.56	428.16	428.16	428.06
11.....	427.76	427.36	427.26	427.06	427.06	428.06	428.36	427.46	427.56	427.86	428.26	429.56
12.....	427.86	427.46	427.26	427.06	427.16	428.46	428.26	427.56	427.56	427.76	428.16	429.26
13.....	427.86	427.46	427.56	427.16	427.16	428.46	428.26	427.46	427.46	427.76	428.26	428.76
14.....	427.86	427.46	427.66	427.16	427.06	428.36	428.26	427.46	427.46	427.76	428.26	428.26
15.....	427.76	427.36	427.66	427.16	427.16	428.46	428.16	427.56	427.56	427.76	428.26	428.16
16.....	427.76	427.36	427.76	427.06	427.26	428.26	428.16	427.66	427.56	427.66	428.16	428.06
17.....	427.76	427.36	427.66	427.06	427.26	428.26	427.96	427.56	427.66	427.66	428.06	428.06
18.....	427.96	427.36	427.66	427.16	427.26	428.16	427.76	427.66	427.76	427.96	427.96	427.96
19.....	427.86	427.26	427.56	427.26	427.36	428.26	427.56	427.56	427.76	427.76	428.06	427.96
20.....	427.66	427.26	427.46	427.46	427.26	428.36	427.46	427.56	427.66	427.76	427.96	428.06
21.....	427.46	427.26	427.36	427.46	427.26	428.26	427.66	427.56	427.66	427.86	427.86	427.86
22.....	427.26	427.36	427.36	427.46	427.16	428.36	427.56	427.56	427.66	428.36	427.96	427.76
23.....	427.16	427.26	427.36	427.46	427.16	428.36	427.56	427.46	427.56	428.26	427.86	427.76
24.....	427.06	427.46	427.36	427.36	427.26	428.16	427.66	427.46	427.86	428.06	427.96	427.86
25.....	427.06	427.36	427.36	427.26	427.26	428.16	427.56	427.46	427.86	428.06	427.96	427.86
26.....	427.06	427.36	427.46	427.16	427.36	428.46	427.56	427.56	427.96	428.16	427.76	427.76
27.....	427.06	427.46	427.46	427.16	427.26	428.46	427.66	427.66	427.96	428.06	427.86	427.76
28.....	427.06	427.36	427.46	427.06	427.26	428.36	427.56	427.56	427.86	428.06	427.86	427.66
29.....	427.06	427.36	427.56	427.16	427.16	428.36	427.56	.....	427.66	428.06	427.96	427.76
30.....	426.96	427.46	427.66	427.06	427.16	428.26	427.66	.....	427.56	428.06	428.06	427.96
31.....	426.96	427.46	.....	427.26	.....	427.96	427.46	.....	427.56	.....	427.76	.....

MOHAWK RIVER AT UTICA

This station, established March 15, 1905, is located at the Genesee street bridge over the Mohawk river in the city of Utica. This bridge is about 3,600 feet below the new terminal lock and about 3,000 feet above the new terminal dam. This dam consists of an ogee crest 100 feet long at elevation 397.0 and 3 Taintor gates each of 30 feet span with sills at elevation 392.0. Its function will be to maintain a low navigable surface of elevation 397.0 in the Utica canal terminal. The gage, formerly a staff secured to timber-work of right abutment, was replaced on May 8, 1913, by a chain gage on the downstream side of the bridge, which was used until September 23, 1915. The gage, temporarily secured to a pile just above the temporary bridge, was carried away by high water. A reference point on the new bridge is now used. It is read twice daily — at 8:00 A. M. and 5:00 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT GENESSEE STREET BRIDGE, UTICA, for the year ended June 30, 1917. W. E. Young, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	394.4	397.35	397.15	397.5	397.7	398.85	399.25	398.85	397.65	399.8	395.85	398.65
2	394.4	397.15	397.35	397.5	397.6	397.75	398.7	398.65	397.75	400.6	396.2	398.6
3	398.85	397.3	397.55	397.4	397.6	397.25	398.55	398.25	397.85	401.05	396.55	398.5
4	395.4	397.8	397.25	397.4	397.7	397.15	398.5	398.2	398.0	400.5	396.75	398.35
5	394.6	397.7	397.1	397.4	398.05	398.45	398.95	398.2	398.15	400.2	397.1	398.3
6	394.4	397.8	397.25	397.5	397.9	398.25	399.15	398.2	398.2	400.3	397.5	398.45
7	394.3	397.7	397.4	397.5	397.8	396.0	398.95	398.2	398.35	400.25	398.0	398.55
8	394.2	397.5	397.5	397.4	397.7	396.8	398.7	398.55	398.7	400.0	398.0	399.15
9	394.1	397.5	397.35	397.4	397.65	397.4	398.75	398.6	398.9	399.65	397.9	399.4
10	394.1	397.45	397.25	397.4	397.7	398.2	398.8	398.55	399.1	399.55	397.85	399.45
11	394.05	397.45	397.15	397.3	397.75	398.45	398.6	398.4	399.3	399.35	397.85	402.05
12	393.9	397.0	397.1	397.3	397.7	398.5	398.2	398.25	399.2	399.15	397.9	403.85
13	393.95	397.65	397.0	397.25	397.75	398.65	398.0	398.1	398.85	399.0	397.8	401.45
14	394.5	397.55	397.0	397.4	398.1	398.8	398.05	398.1	398.8	398.7	397.65	398.85
15	394.0	397.5	397.1	397.4	398.1	398.7	397.9	398.2	399.25	398.55	397.55	398.15
16	393.9	397.5	397.4	397.35	397.8	398.65	397.5	398.2	399.55	398.6	397.55	398.85
17	393.85	397.4	397.25	397.15	397.7	398.65	397.65	398.25	399.7	398.5	397.55	399.2
18	393.8	397.3	397.2	397.1	397.75	398.65	397.55	398.3	399.4	398.45	397.45	399.0
19	393.8	397.3	397.1	397.35	397.9	398.5	397.5	398.35	399.15	398.4	397.35	398.85
20	394.15	397.2	396.95	397.85	397.95	398.5	397.5	398.35	398.95	398.55	397.45	399.1
21	394.55	397.1	396.8	398.6	397.85	398.0	397.7	398.25	399.55	398.6	397.5	398.85
22	395.3	397.1	397.2	398.7	397.8	398.75	398.25	398.2	399.25	398.65	397.65	399.4
23	397.15	397.05	398.05	398.3	397.9	398.95	398.35	398.1	399.7	397.8	397.8	399.2
24	396.9	397.3	398.3	398.1	397.6	399.25	398.3	398.25	401.6	396.45	398.0	398.95
25	396.6	397.15	398.05	398.0	397.7	399.95	398.15	398.35	403.25	396.0	398.3	397.4
26	396.8	397.1	397.75	397.9	397.9	399.9	398.1	398.5	402.7	395.8	398.35	396.4
27	398.65	397.35	397.7	398.0	397.7	399.6	398.1	398.7	401.9	395.7	398.5	396.1
28	398.75	397.55	397.5	398.0	397.9	399.85	398.0	397.85	401.1	395.8	398.55	396.2
29	398.4	397.6	397.65	397.95	398.65	399.85	398.0	.....	400.45	395.8	398.75	396.45
30	398.0	397.35	397.65	397.9	399.15	399.8	398.4	.....	400.0	395.6	397.85	396.85
31	397.55	397.25	.....	397.6	.....	399.75	398.6	.....	399.55	.....	394.1	.....

MOHAWK RIVER AT FRANKFORT

This station was established January 25, 1913, at the highway bridge over the Mohawk river on the Dyke road between Frankfort and North Frankfort about 10 miles east of Utica. The gage is a standard chain on the downstream side of the new steel bridge. It is read twice daily—at 8 A. M. and 4 P. M.—to tenths. The water-surface indicated is that of the river about 1,600 feet below the new retention dam and about 200 feet below the end of the land-line running east from Barge canal lock No. 19 at Sterling creek.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT FRANKFORT for the year ended June 30, 1917. C. F. Loring, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	380.4	382.9	383.8	383.0	378.75	382.15	379.2	381.75	382.7	383.85	380.6	382.95
2.....	381.35	383.05	383.9	380.15	378.85	380.75	380.0	381.15	381.7	385.3	381.2	383.1
3.....	382.85	381.95	383.6	381.15	378.55	381.05	380.35	381.05	381.1	386.75	382.65	383.05
4.....	382.7	379.75	383.0	383.35	379.45	380.45	380.3	381.7	380.45	387.2	380.6	381.2
5.....	381.3	380.1	383.9	384.15	379.85	380.65	380.85	381.15	380.05	386.35	380.8	380.95
6.....	381.35	381.8	383.1	382.2	380.0	381.95	381.4	380.1	379.9	384.8	383.3	381.5
7.....	380.95	381.75	382.95	379.65	379.65	380.7	381.45	379.6	379.75	384.95	382.1	382.35
8.....	381.85	380.8	383.3	379.5	379.15	380.4	381.3	379.75	379.85	384.75	381.05	384.15
9.....	381.55	381.05	383.05	379.4	378.9	380.2	381.6	379.55	379.85	382.95	380.85	383.4
10.....	381.9	383.25	382.8	379.85	379.05	381.45	381.8	379.4	379.7	382.1	380.85	383.2
11.....	382.45	383.2	383.05	379.35	379.3	381.35	381.65	379.3	379.8	381.65	380.55	385.4
12.....	382.4	381.2	383.35	379.2	379.1	380.55	382.1	379.15	382.0	380.75	380.75	389.6
13.....	382.65	381.55	383.25	379.15	378.9	380.7	381.9	378.85	383.3	381.35	380.55	388.05
14.....	384.95	381.65	382.85	379.75	379.15	379.75	381.5	379.6	382.9	381.0	380.3	385.85
15.....	382.2	380.3	383.85	379.8	379.05	380.65	382.45	379.85	381.25	380.45	379.8	383.55
16.....	381.55	380.05	383.2	379.35	378.75	379.05	382.45	379.45	380.65	380.45	383.0	382.45
17.....	380.6	379.75	381.95	378.95	379.25	379.8	381.55	380.1	380.9	380.25	380.75	382.2
18.....	381.15	379.65	382.0	378.1	379.05	379.75	381.15	379.25	381.05	380.1	381.3	381.95
19.....	380.9	381.4	382.95	378.25	379.25	379.85	380.95	379.05	380.65	380.4	381.25	383.2
20.....	379.95	382.5	383.25	379.05	379.2	379.75	381.0	379.4	380.4	381.25	381.15	383.5
21.....	380.05	382.8	383.3	380.65	379.85	383.0	380.95	379.05	380.45	382.5	381.55	383.4
22.....	383.2	382.85	383.2	381.6	378.8	382.8	381.15	379.0	380.85	381.95	381.6	382.25
23.....	383.65	382.6	383.45	380.15	378.55	380.95	381.25	378.85	382.95	381.3	381.85	381.2
24.....	381.6	382.65	383.55	379.6	381.25	380.3	381.1	378.95	387.35	380.85	382.3	381.6
25.....	383.3	382.8	383.3	379.2	381.1	380.55	382.1	378.9	388.85	380.55	383.1	382.45
26.....	383.25	382.1	383.25	378.75	379.75	380.35	381.95	379.05	389.85	380.1	382.15	381.5
27.....	383.2	379.9	383.9	378.65	379.3	380.05	381.9	385.0	389.85	380.45	381.15	383.8
28.....	383.5	380.6	382.0	378.4	379.6	380.15	382.4	385.45	389.4	380.55	380.4	383.45
29.....	383.3	382.7	383.7	378.7	380.5	380.05	382.2	.....	387.7	380.15	383.95	383.15
30.....	382.85	383.35	383.45	378.5	382.85	379.55	382.8	.....	384.3	379.85	384.15	384.35
31.....	382.55	383.65	.....	378.3	.....	379.0	382.45	.....	383.05	.....	382.2	.....

MOHAWK RIVER AT ILION

This station, established January 24, 1913, is located at the highway bridge over the Mohawk river opposite the village of Ilion and about 2 miles above Barge canal dam No. 14 at

Herkimer. A standard chain gage, attached to the downstream truss near the center of the new bridge, is read to tenths twice daily—between 7 and 9 in the morning and 4 and 6 in the afternoon.

Emendation, June, 1916.—Owing to an error in datum, the elevations for June, 1916, published in Report of State Engineer for 1916, Vol. II, page 334, should be made 0.2 lower.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT ILION, for the year ended June 30, 1917. P. C. Earl, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	380.7	382.8	383.6	382.5	378.2	381.7	b	380.7	382.35	384.5	380.9	382.5
2	380.5	382.7	384.05	380.85	378.5	381.5	b	380.8	381.5	385.4	381.15	382.9
3	382.3	381.25	382.85	381.6	378.7	381.5	b	381.25	380.65	386.15	381.0	382.3
4	381.65	379.85	383.8	382.55	378.25	381.5	b	381.00	380.2	386.4	380.8	381.1
5	381.4	380.2	383.3	383.2	379.75	380.65	b	380.5	379.85	385.3	380.85	381.45
6	380.8	381.6	382.8	381.15	379.9	380.5	b	379.5	379.75	384.65	381.4	381.6
7	380.9	380.6	382.85	379.75	379.7	380.25	382.7	379.9	379.45	384.55	382.1	382.0
8	381.2	380.3	382.95	379.15	379.1	380.2	382.5	380.0	379.45	383.7	380.85	384.1
9	381.3	380.9	383.1	379.0	378.85	380.55	382.55	379.25	379.5	382.2	380.2	384.0
10	381.25	382.5	382.95	379.3	378.95	381.15	382.1	378.95	379.5	381.25	379.4	382.5
11	380.95	382.2	383.0	379.1	379.0	380.6	381.85	378.95	379.65	380.8	380.15	384.4
12	381.55	381.25	383.0	378.85	379.0	380.4	381.8	378.85	381.5	380.55	380.25	389.2
13	382.5	381.15	383.3	378.8	378.7	380.45	381.35	378.8	382.3	380.7	379.95	387.3
14	383.65	381.15	382.6	379.5	379.1	379.75	381.15	379.3	381.2	380.85	379.8	385.0
15	381.85	380.45	383.45	379.85	378.85	379.75	382.3	379.55	381.05	380.05	379.5	383.45
16	381.3	379.9	381.95	380.05	378.65	379.45	382.2	379.3	380.6	380.2	381.1	382.35
17	379.85	379.8	381.15	379.8	378.75	379.6	381.0	379.8	380.7	380.05	381.2	381.8
18	381.00	379.6	382.1	379.1	379.1	379.8	380.75	378.95	380.85	380.1	381.7	381.3
19	380.6	381.5	382.85	378.35	379.4	379.65	380.35	378.8	381.1	380.25	381.3	383.45
20	379.65	382.1	382.6	378.75	379.25	380.25	380.4	379.1	379.75	381.55	380.95	383.65
21	380.2	382.05	382.8	379.3	379.7	382.55	380.55	379.15	379.75	382.9	381.45	383.4
22	382.4	382.15	382.9	381.35	379.65	382.35	381.2	379.3	380.05	383.2	381.55	382.45
23	383.4	381.85	383.15	380.2	379.2	381.8	381.0	379.3	382.7	381.55	381.85	381.95
24	382.25	382.05	383.55	379.1	379.3	b	381.25	378.7	387.25	380.85	381.65	381.8
25	382.85	382.1	383.5	378.3	379.4	b	381.95	378.95	388.75	380.2	381.55	382.15
26	383.1	382.0	382.0	378.6	379.45	b	381.85	379.25	389.1	379.8	381.45	381.4
27	383.3	382.1	382.05	378.7	380.1	b	381.95	383.3	388.95	379.9	380.85	383.75
28	383.75	382.25	381.95	378.7	380.65	b	382.25	384.95	388.55	380.05	381.1	383.2
29	383.3	383.0	383.0	378.65	381.25	b	382.6	.....	386.75	380.4	382.15	383.1
30	383.0	383.5	383.2	378.5	382.45	b	382.8	.....	384.8	380.05	384.0	385.0
31	382.8	383.45	.....	378.65	.....	b	382.0	.....	382.5	.....	382.5	.....

b No record; observer sick.

MOHAWK RIVER AT MOHAWK STREET, HERKIMER

This station, established November 23, 1904, is located at the Utica and Mohawk Valley electric railway bridge over the Mohawk river at Mohawk street, connecting the villages of Herkimer and Mohawk. A standard chain gage is located on the upstream wing of the north, or left-hand abutment of the bridge. This gage is about 70 feet above dam No. 14, which is of a

movable type with a fixed sill at elevation 374.0. The gage also indicates closely the water-surface above the canal guard-gate at this locality. Readings are taken twice daily—morning and afternoon—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT MOHAWK STREET BRIDGE, HERKIMER, for the year ended June 30, 1917. H. S. Bishton, Observer

DAY	April	May	June	DAY	April	May	June	DAY	April	May	June
1.....		380.05	382.18	11.....		380.02	384.90	21.....		381.30	383.05
2.....		380.60	382.95	12.....		379.85	387.84	22.....	381.20	381.48	381.35
3.....		380.20	382.65	13.....		379.88	386.25	23.....	380.60	381.58	380.92
4.....		379.70	381.10	14.....		379.70	384.22	24.....	380.30	381.95	382.06
5.....		380.55	380.90	15.....		379.52	382.70	25.....	380.05	382.55	381.75
6.....		382.30	381.40	16.....		381.50	381.88	26.....	379.70	381.62	381.30
7.....		381.60	382.38	17.....		382.02	381.48	27.....	379.80	380.92	384.15
8.....		380.62	383.92	18.....		381.15	381.50	28.....	379.90	381.15	382.45
9.....		380.34	383.35	19.....		380.95	383.65	29.....	379.70	382.78	384.20
10.....		380.15	383.40	20.....		381.08	383.82	30.....	379.52	383.15	384.45
								31.....		381.68	

NOTE.—The record for this station from July 1, 1916, to April 21, 1917, inclusive, not available for publication.

MOHAWK RIVER AT WASHINGTON STREET, HERKIMER

This station, established February 4, 1913, is located at the Washington street bridge over the Mohawk river, opposite the village of Herkimer. It is about 4,700 feet below dam No. 14 and about 2,700 feet above the mouth of West Canada creek. This section of the river is not canalized. The gage is a standard chain attached to the upstream side of the bridge and is read twice daily—morning and afternoon—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT WASHINGTON STREET BRIDGE, HERKIMER, for the year ended June 30, 1917. H. S. Bishton, Observer

DAY	April	May	June	DAY	April	May	June	DAY	April	May	June
1.....		376.20	375.85	11.....		376.20	379.18	21.....		375.49	377.35
2.....		376.95	375.82	12.....		376.18	382.68	22.....	378.20	375.15	376.35
3.....		376.45	376.18	13.....		377.04	380.48	23.....	377.82	375.45	376.08
4.....		376.30	375.65	14.....		375.85	378.02	24.....	377.22	375.60	376.40
5.....		376.58	375.12	15.....		375.42	377.80	25.....	376.57	376.15	376.90
6.....		377.80	375.28	16.....		375.20	378.12	26.....	376.15	375.85	375.88
7.....		377.38	375.65	17.....		375.60	377.38	27.....	376.32	375.48	376.72
8.....		376.62	376.80	18.....		375.65	376.05	28.....	376.20	375.22	376.38
9.....		376.26	378.05	19.....		376.34	376.15	29.....	375.85	377.70	376.60
10.....		376.28	377.15	20.....		375.35	376.75	30.....	375.65	378.10	377.85
								31.....		375.95	

NOTE.—The record at this station from July 1, 1916, to April 21, 1917, inclusive, not available for publication.

MOHAWK RIVER ABOVE STATE DAM, LITTLE FALLS

This station, established February 4, 1904, is located just above the upper, or State dam on the Mohawk river at Little Falls. A staff gage, attached to the west wing-wall of the culvert over the stream from a waste-weir of the old Erie canal and about 400 feet upstream from the Hanson avenue bridge over the old canal feeder, was used until October 1, 1916. Since that date the concrete gate on the south wall of the Little Falls guard-gate has been used. The State dam with crest averaging about elevation 63.0 is not affected by Barge canal construction.

Readings are taken twice daily—morning and afternoon—tenth.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER ABOVE STATE DAM AT LITTLE FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	363.8	363.4	363.8	363.95	363.8	365.9	364.0	364.2	364.8	365.85	364.8	364.4
2.....	363.8	363.3	363.7	363.75	363.9	365.3	364.0	364.05	364.5	366.6	365.2	364.3
3.....	364.3	363.55	363.8	363.75	364.0	364.95	364.1	364.3	364.3	366.4	365.45	364.3
4.....	364.3	363.65	363.7	363.65	364.05	364.55	364.1	363.8	364.2	366.15	365.2	364.3
5.....	364.15	363.6	363.6	363.8	364.45	364.9	364.2	363.85	364.2	365.8	364.9	364.1
6.....	363.85	363.6	363.5	363.9	364.15	365.1	364.2	363.95	364.2	365.5	365.45	364.0
7.....	363.75	363.6	363.6	363.9	364.0	364.95	364.3	364.1	364.2	365.6	365.0	364.05
8.....	363.7	363.5	363.6	363.8	363.9	364.6	364.3	364.0	364.15	365.5	364.7	364.8
9.....	363.6	363.6	363.6	364.0	363.9	364.55	364.3	364.05	364.15	364.9	364.55	365.4
10.....	363.65	363.6	363.65	363.8	364.0	364.8	364.3	364.0	364.1	364.6	364.6	365.45
11.....	363.8	363.5	363.5	363.8	364.05	364.6	364.3	363.8	364.2	364.6	364.6	366.7
12.....	363.8	363.6	363.6	363.8	364.1	364.5	364.3	363.8	364.55	364.5	364.6	368.7
13.....	363.8	363.7	363.55	363.9	363.95	364.5	364.3	363.75	365.0	364.55	364.5	368.05
14.....	364.35	363.65	363.65	363.95	364.1	364.35	364.3	363.65	364.75	364.5	364.45	366.55
15.....	364.3	363.6	364.0	363.9	364.1	364.25	364.4	363.75	364.55	364.6	364.35	365.75
16.....	363.8	363.6	363.95	363.85	364.1	364.0	364.55	363.7	364.4	364.3	364.25	365.85
17.....	363.8	363.6	363.5	363.9	364.0	363.9	364.35	363.65	364.5	364.3	364.45	365.25
18.....	363.7	363.6	363.5	363.85	364.0	364.1	364.25	363.7	364.3	364.3	364.4	364.75
19.....	363.7	363.55	363.5	363.9	364.0	364.0	364.15	363.7	364.2	364.8	364.35	364.45
20.....	363.7	363.7	363.5	363.95	363.9	364.0	364.05	363.75	364.1	365.75	364.4	364.5
21.....	363.6	363.5	363.5	364.45	363.9	364.0	364.1	363.8	364.2	366.15	364.4	364.85
22.....	363.5	363.6	363.7	364.2	363.9	364.0	364.1	363.7	364.4	366.45	364.35	364.6
23.....	363.8	363.6	364.0	364.0	364.0	364.0	364.1	363.75	364.8	366.3	364.35	364.3
24.....	363.65	363.6	363.85	363.9	365.3	364.0	364.1	363.85	366.7	365.8	364.1	364.6
25.....	363.65	363.5	363.9	363.7	365.7	364.0	364.1	363.80	367.45	365.55	364.15	364.5
26.....	363.7	363.55	363.75	363.7	365.1	364.0	364.1	363.75	367.6	365.3	364.15	364.45
27.....	363.7	363.75	363.65	363.7	364.5	364.0	364.1	365.3	367.9	365.0	364.25	364.55
28.....	363.6	363.6	363.65	363.75	364.4	364.0	364.0	365.6	367.6	364.65	364.15	364.4
29.....	363.65	363.5	363.95	363.8	364.6	364.0	364.1	.....	366.15	364.5	364.4	364.45
30.....	363.8	363.4	364.05	363.7	365.9	364.0	364.2	.....	365.2	364.75	364.5	365.05
31.....	363.7	363.55	.....	363.7	.....	364.0	364.3	.....	365.25	.....	364.6	.....

MOHAWK RIVER AT LOCK No. 17, LITTLE FALLS

This station is located on the Mohawk river at the lower end of lock No. 17 in the city of Little Falls. It is about 3.7 miles above and at the head of the canalized pool formed by the Rocky Rift dam and about 0.9 mile above the suspension bridge. The concrete vertical staff gage at the lower end of the lock is read irregularly by the local engineering force.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT LOCK No. 17
LITTLE FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		321.3	322.8	322.1	321.6	
2		322.7	322.9	321.7	321.9	
3		322.9	322.9	322.5		
4		322.9	322.8	322.7		
5		322.8	322.9	322.6		
6		322.8	322.6	322.8		
7		322.8	322.8	322.9		
8	322.3	322.8	322.9	322.8		
9	322.1	322.8		322.8		
10	322.3	322.7		322.8		
11	322.4	322.8		322.6		
12	322.5	323.0		322.7		322.5
13	322.3	322.7		322.7		322.3
14	323.4	322.7		323.3		
15	323.9	322.9		323.2		321.5
16	323.1	322.8		322.8		321.3
17	322.9	322.8		322.9		
18	322.8	322.8		322.8		321.1
19	322.9	322.7		321.3		321.3
20	322.5	322.8		321.6		321.3
21	322.0	322.8		322.9		321.2
22	322.4	322.9		322.4		321.7
23	322.5	322.9		322.0		
24	322.4	322.7		321.6		
25	322.4	322.9		321.5		
26	322.5	322.9		321.5		321.7
27	322.4	322.9		321.6		321.7
28	322.0	322.7		321.4		321.8
29	322.8	322.7		321.4		321.7
30	322.5	322.7	322.4	322.7		
31	322.3	322.8		322.1		

No readings, January to June, 1918, inclusive.

BARGE CANAL AT INDIAN CASTLE

This station indicates the water-surface in the Barge canal above the guard-gate at Indian Castle, about 5 miles east of Little Falls. Castle creek enters the Barge canal from the south, just west, or above the guard-gate, and is diverted westward through the canal land-line about 3,400 feet, entering the Mohawk river just above the Rocky Rift dam. Low navigable surface in this section of the canal is at elevation 322.5.

A vertical staff gage on the upstream, or west face of the guard-gate, is read to tenths once daily.

Daily elevation of water-surface (B. C. datum) of BARGE CANAL ABOVE GUARD-GATE, INDIAN CASTLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	321.9			322.1	321.5	325.4	a	321.4	320.6	a	322.2	321.6
2	322.0			321.6	321.8	324.1	322.0	a	321.3	a	322.8	321.6
3	323.1			322.5	321.5		a	321.1	320.6	a	323.3	321.6
4				322.7	321.5		a	a	a	a	322.8	321.7
5	323.0			322.5	322.5		322.0	321.1	318.1	a	322.4	321.2
6				322.7	322.2	323.6	322.3	321.0	317.5	322.1	323.2	321.2
7	322.5				322.0	323.4	a	321.0	317.1	323.5	322.7	321.3
8	322.2				321.6		322.2	321.0	316.0	a	322.3	322.5
9	322.1				321.5	322.6	322.2	321.0	317.1	322.6	322.2	323.7
10	322.3			322.7	321.7	323.2	322.3	320.8	316.8	322.1	321.8	323.1
11	322.3			322.6	321.4		a	a	a	322.0	322.0	324.5
12	322.3			322.6	321.1		322.2	320.7	317.1	321.8	322.1	327.0
13	322.3			322.6	321.6		322.1	320.7	317.5	321.9	321.8	326.9
14	323.1			323.1	321.6	321.4	a	320.6	317.6	321.8	321.8	324.5
15				323.1	322.5		321.8	320.6	317.8	a	321.3	323.5
16				323.0	321.6		322.1	320.7	318.0	a	321.6	323.0
17				322.8	321.6	321.1	321.4	320.6	318.2	321.6	321.8	322.5
18				322.7	321.8		321.4	a	a	321.6	321.7	322.1
19				321.2	321.7		321.3	320.5	a	321.8	321.7	321.6
20				321.4	321.7		321.1	320.5	318.5	322.0	321.6	321.6
21				322.5	322.0		a	320.5	318.6	a	321.6	323.5
22				322.3	321.4		321.2	320.5	318.7	323.8	321.3	322.0
23				322.0	321.3	321.4	321.1	320.5	319.0	323.5	321.3	321.6
24				321.6	324.1		321.0	320.5	325.3	323.3	321.3	321.4
25				321.5	324.8		321.1	a	a	323.1	321.3	321.7
26				321.5	324.1		321.1	320.7	325.6	322.5	321.3	321.5
27				321.5	322.8		321.0	323.0	326.3	322.7	321.4	321.5
28				321.6	322.8		a	322.0	326.5	322.3	321.3	321.6
29				321.3	323.0		a		324.3	321.8	321.6	321.5
30				322.6	324.8	321.4	321.4		323.1	322.0	323.3	322.5
31				322.0			321.6		322.8		322.7	

a No record.

MOHAWK RIVER AT ST. JOHNSVILLE

This station, established January 22, 1913, is located at the highway bridge crossing the Mohawk river at the village of St. Johnsville. It is about 1.3 miles below the Mindenville retention dam opposite Barge canal lock No. 16 and about 5.3 miles above the movable dam (No. 11) at Fort Plain. A standard chain gage attached to the upstream side of the bridge is read twice daily—at 8 A. M. and 4 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT ST. JOHNSVILLE, for the year ended June 30, 1917. H. C. Dowling, Observer

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	300.25	300.05	301.15	300.85	301.4	303.9	298.2	302.05	302.55	302.35	301.75	301.7
2.....	301.1	300.8	301.15	300.85	301.35	301.85	299.9	301.35	301.85	305.05	303.05	301.75
3.....	302.0	301.15	301.1	300.6	300.92	301.35	300.2	300.35	301.4	304.95	303.2	301.4
4.....	301.7	301.4	300.85	300.7	301.32	301.88	299.85	300.95	300.5	303.85	302.5	301.95
5.....	301.1	300.75	300.75	300.95	302.05	302.15	300.35	300.75	300.55	302.9	302.4	301.45
6.....	301.0	300.55	301.6	301.75	301.32	302.55	300.4	300.55	300.5	301.85	303.1	301.55
7.....	300.9	300.85	301.45	300.95	301.4	301.48	300.45	300.55	299.95	302.0	302.9	301.95
8.....	301.1	300.95	301.55	300.75	301.1	298.85	300.4	300.55	300.05	299.8	302.25	302.85
9.....	300.8	300.7	301.7	300.65	301.22	298.15	300.25	300.6	300.4	299.3	301.95	303.6
10.....	301.5	300.6	301.15	301.65	301.98	298.35	300.35	300.2	300.05	298.45	301.85	303.05
11.....	301.85	300.8	300.95	301.2	300.95	298.65	300.0	299.65	299.65	298.5	302.1	305.65
12.....	301.55	301.3	301.05	301.3	301.4	297.68	300.15	299.8	300.05	298.55	302.05	309.15
13.....	301.0	300.95	301.1	301.15	301.5	297.5	301.3	300.05	302.6	298.65	301.45	307.05
14.....	302.1	300.9	301.1	301.65	302.08	297.25	300.7	300.05	302.1	297.85	301.25	304.2
15.....	301.35	301.3	301.6	301.3	301.8	297.0	302.15	299.85	301.45	297.55	301.35	302.6
16.....	300.9	301.15	301.85	301.1	299.45	296.95	302.5	299.6	301.1	297.5	303.2	302.85
17.....	300.95	301.05	301.0	301.15	300.92	296.7	301.7	299.45	300.75	297.2	302.65	302.2
18.....	300.95	300.95	300.9	301.4	301.15	296.6	301.7	299.35	300.8	296.15	302.15	301.9
19.....	301.3	300.55	301.05	301.2	301.68	295.95	301.3	299.4	300.6	299.0	301.95	301.8
20.....	301.25	300.45	301.15	301.5	301.8	296.0	301.3	299.4	300.1	301.15	301.85	301.7
21.....	300.75	300.9	301.2	302.25	302.03	295.75	301.15	299.3	300.0	303.95	301.95	302.8
22.....	300.45	301.3	301.4	301.8	301.12	296.35	301.4	299.05	300.4	304.35	301.8	302.9
23.....	300.9	301.25	301.65	301.5	301.15	296.85	301.7	299.05	301.8	303.35	301.65	301.7
24.....	301.25	301.3	301.2	301.35	303.02	297.3	301.7	299.05	307.1	302.75	301.75	302.35
25.....	300.7	301.3	301.25	301.5	303.5	297.55	301.5	298.85	312.35	301.65	301.7	301.95
26.....	301.0	301.45	301.15	301.45	302.22	299.7	301.5	298.95	310.1	301.1	301.9	301.85
27.....	301.0	301.45	301.1	301.5	301.55	300.1	300.85	302.55	307.25	301.75	301.95	302.55
28.....	301.65	301.2	201.2	301.55	301.75	299.95	300.95	304.25	306.55	300.95	302.0	302.2
29.....	301.4	301.3	301.9	301.0	302.35	299.4	301.5	.....	303.35	301.05	301.95	302.55
30.....	300.7	301.25	301.9	301.65	303.92	298.8	302.05	.....	300.9	301.0	303.0	303.25
31.....	300.65	301.0	.....	301.8	.....	297.65	302.1	.....	300.1	.....	302.8	.....

MOHAWK RIVER AT FORT PLAIN

This station, established December 30, 1905, is located at the River street highway bridge over the Mohawk river, connecting the villages of Fort Plain and Nelliston. It is about 0.4 mile below the movable dam (No. 11) at Fort Plain and about 2.9 miles above the movable dam (No. 10) at Canajoharie. The gage is a standard chain secured to the downstream side of the bridge, about 50 feet from the south, or right bank abutment and is read twice daily—at 9 A. M. and 4 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT FORT PLAIN, for the year ended June 30, 1917. Eugene Snell, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	291.4	291.5	292.2	292.05	291.75	295.7	292.1	291.2	294.1	293.4	293.25	293.2
2.....	292.1	292.1	292.1	292.1	291.6	294.1	293.25	291.1	292.45	296.75	294.65	293.2
3.....	291.8	292.05	292.1	291.95	291.85	293.25	293.3	291.15	291.9	296.85	295.1	293.1
4.....	293.4	292.1	291.9	291.7	291.75	292.45	293.3	288.85	290.9	295.35	293.7	293.3
5.....	292.1	291.6	292.05	291.9	292.25	292.95	293.6	289.4	291.2	294.35	294.2	293.15
6.....	291.9	291.9	292.1	292.2	292.05	292.7	293.65	289.65	291.6	293.1	295.1	292.7
7.....	291.1	291.8	291.9	291.55	291.90	291.45	293.8	289.6	291.6	293.55	294.15	293.0
8.....	291.55	291.6	292.1	292.1	292.15	290.40	293.65	289.65	291.15	292.35	294.2	293.85
9.....	291.55	292.0	292.25	292.1	291.85	289.1	293.35	289.55	289.8	291.1	294.1	294.45
10.....	292.1	291.7	291.6	291.9	292.3	293.1	293.4	289.35	289.75	289.6	292.25	294.2
11.....	290.05	291.9	292.15	291.9	291.9	291.6	292.4	289.2	289.55	289.45	292.1	296.35
12.....	292.35	292.2	291.8	291.85	292.35	289.4	292.4	288.55	290.35	289.65	291.8	300.65
13.....	293.4	292.1	291.65	291.7	292.3	288.5	291.85	285.8	292.85	289.7	292.0	298.8
14.....	292.1	291.65	291.9	292.4	292.45	288.65	291.2	288.5	292.65	289.5	291.85	295.2
15.....	291.9	292.1	292.3	291.85	291.95	288.55	291.95	288.85	291.7	289.05	293.85	293.45
16.....	291.95	291.45	292.1	292.25	291.6	287.3	292.5	288.85	291.2	288.6	294.05	294.1
17.....	291.9	292.1	291.85	292.2	291.8	286.5	291.55	288.45	291.35	288.5	294.0	293.1
18.....	291.65	291.7	291.85	291.95	291.45	287.35	291.4	289.6	291.25	289.35	296.8	293.15
19.....	292.1	292.15	291.3	292.1	292.2	287.55	291.1	288.55	291.1	293.2	294.5	293.6
20.....	292.2	291.85	291.9	291.95	292.25	289.7	289.5	288.5	289.35	292.35	293.1	292.6
21.....	292.1	292.3	292.1	293.1	292.1	291.85	289.55	288.65	289.45	294.6	293.1	293.7
22.....	291.55	292.15	292.1	292.2	291.65	293.55	289.55	288.55	290.35	295.15	294.1	293.25
23.....	292.1	292.05	292.45	292.3	291.6	294.4	289.5	288.5	292.45	294.5	293.0	293.15
24.....	291.75	291.95	292.3	291.65	294.15	295.5	292.15	288.55	298.45	293.5	293.3	293.2
25.....	292.2	291.9	292.3	291.7	295.25	295.2	292.2	288.55	302.55	292.0	293.3	293.2
26.....	292.1	292.1	292.3	292.25	293.3	294.4	290.75	288.4	303.1	291.1	292.8	293.0
27.....	292.2	292.1	292.25	291.7	292.2	294.25	289.2	293.55	298.9	291.25	293.25	293.25
28.....	292.3	291.7	292.05	291.7	292.2	294.3	289.45	295.45	299.05	292.1	293.3	293.05
29.....	291.7	291.85	292.2	291.65	292.5	293.75	290.7	.....	295.2	289.65	293.8	293.05
30.....	291.85	291.8	292.7	291.75	295.55	293.25	291.6	.....	292.4	293.2	294.25	294.55
31.....	291.55	291.3	.....	291.7	.....	292.25	291.4	.....	291.5	.....	294.1	.....

MOHAWK RIVER AT CANAJOHARIE

This station, established September 16, 1908, is located at the highway bridge over the Mohawk river, connecting the villages of Canajoharie and Palatine Bridge. It is about 1,900 feet below the movable dam (No. 10) at Canajoharie. A standard chain gage attached to the bridge is read twice daily to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT CANAJOHARIE for the year ended June 30, 1917. Sanford Bracebridge, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	285.7	285.06	285.06	285.7	285.8	287.15	285.2	281.8	288.0	285.15	285.2	285.5
2.....	285.85	285.35	285.3	285.55	285.75	286.7	285.05	281.65	286.75	285.7	285.35	285.2
3.....	287.75	286.2	285.1	285.55	285.95	286.25	284.9	281.55	285.75	286.2	286.05	285.35
4.....	286.65	285.2	285.25	285.35	285.75	286.05	285.05	281.45	284.95	286.65	286.6	285.5
5.....	286.0	285.35	285.4	285.25	285.75	285.85	285.1	281.4	284.55	287.25	286.8	285.65
6.....	286.0	285.2	285.2	285.35	285.5	285.7	285.2	281.2	284.15	286.6	286.6	285.5
7.....	285.5	284.95	285.2	285.25	285.85	286.15	284.45	281.2	283.7	285.8	286.4	286.15
8.....	285.25	285.15	285.6	285.1	285.75	285.2	284.25	281.0	283.35	285.1	286.15	286.6
9.....	285.05	285.35	285.75	285.3	285.65	284.3	283.9	280.9	283.1	284.55	286.05	286.2
10.....	285.35	285.1	285.7	285.25	285.45	282.8	283.65	280.75	283.1	284.2	285.8	287.0
11.....	285.6	285.1	285.45	285.1	285.75	281.7	283.3	280.6	286.3	283.2	285.55	292.
12.....	284.25	285.35	285.7	285.35	285.85	280.45	282.85	280.6	286.7	282.7	285.5	293.1
13.....	285.3	285.2	285.4	285.3	285.75	279.85	282.85	280.75	286.15	282.1	285.5	291.5
14.....	286.8	285.2	286.0	285.35	285.65	279.35	282.75	280.8	286.0	281.25	285.55	290.0
15.....	285.5	285.0	285.95	285.55	286.1	279.15	282.6	280.8	286.4	281.0	285.45	287.2
16.....	285.3	284.85	285.85	285.45	285.85	278.95	282.45	280.7	286.65	280.9	285.7	286.55
17.....	285.0	285.0	285.95	285.4	285.5	279.65	282.4	280.7	286.8	281.75	285.7	286.1
18.....	285.25	285.0	285.8	285.3	285.25	280.15	282.3	280.6	285.3	283.95	285.5	285.7
19.....	285.65	284.75	286.05	285.55	285.35	281.65	282.25	280.55	284.4	285.5	285.45	285.4
20.....	285.1	284.9	286.05	285.3	285.7	281.85	282.15	280.4	284.05	286.0	285.55	285.5
21.....	285.25	285.1	285.65	285.4	285.7	282.1	282.05	280.25	284.7	287.15	285.4	285.95
22.....	285.4	284.85	285.9	285.55	286.1	282.35	282.0	280.2	286.05	288.55	285.25	285.3
23.....	285.4	285.05	285.95	285.65	287.4	282.05	281.9	280.2	288.45	289.2	285.4	284.75
24.....	285.7	285.65	285.25	285.75	287.05	281.9	281.9	280.2	292.35	287.95	285.65	284.9
25.....	285.45	285.55	285.0	285.5	286.45	281.65	281.8	280.2	294.8	287.05	285.85	284.7
26.....	285.55	285.3	285.75	285.2	286.25	282.1	281.8	280.65	296.25	286.3	285.8	284.35
27.....	285.25	285.5	285.55	285.4	286.1	282.45	281.7	287.0	294.05	286.1	285.95	284.35
28.....	285.85	285.65	285.75	285.65	286.85	283.05	281.7	288.95	292.35	285.8	286.3	284.9
29.....	285.65	285.3	286.0	285.85	285.95	283.15	281.7	.....	289.1	285.45	286.65	285.6
30.....	285.15	285.2	286.05	285.65	287.1	283.35	281.8	.....	286.7	285.15	286.2	286.2
31.....	285.35	285.3	.....	285.45	.....	282.2	281.8	.....	285.25	.....	286.0	.....

MOHAWK RIVER AT FONDA

This station, established April 29, 1906, is located at the highway bridge over the Mohawk river, connecting the villages of Fonda and Fultonville. This bridge is about 4.6 miles below movable dam No. 9 near Yosts, and about 5 miles above movable dam No. 8 and the mouth of Schoharie creek at Tribes Hill.

Previous to 1913, discharge was computed at this station, but this was discontinued, owing to the destruction of the control, due to Barge canal construction work, and the station has since been maintained for surface elevation only.

A standard chain gage attached to the downstream side of the middle span of the bridge is read twice daily—between 8 and 9 A. M. and 3 and 5 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT FULTONVILLE
BRIDGE, FONDA, for the year ended June 30, 1917. Richard Kilmartin, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	278.35	278.3	278.5	278.5	278.4	279.65	273.2	275.95	283.25	277.3	278.7	277.95
2.	278.25	278.45	278.5	278.3	278.7	278.45	273.1	275.4	282.1	281.2	279.25	278.4
3.	278.35	278.7	278.45	278.35	278.5	278.7	274.25	274.85	280.65	281.5	279.3	278.2
4.	278.15	277.5	278.5	278.3	278.4	277.65	273.45	274.3	279.8	280.1	279.0	278.3
5.	278.35	278.4	278.45	278.2	279.05	277.95	274.35	273.7	279.25	279.4	279.15	277.95
6.	278.15	278.5	278.5	278.2	278.65	278.2	274.75	273.75	278.8	278.15	279.4	278.1
7.	278.15	278.4	278.4	278.4	278.55	277.9	274.9	274.0	278.65	278.75	279.65	278.15
8.	278.45	278.3	278.7	278.45	278.4	277.1	275.0	274.0	278.55	278.7	278.35	278.35
9.	278.3	278.35	278.5	278.45	278.4	277.1	274.9	274.0	277.95	278.35	278.5	279.4
10.	278.4	278.3	278.35	278.3	278.55	277.35	274.9	274.0	277.5	277.7	278.2	279.3
11.	278.45	278.35	278.5	278.2	278.15	275.2	274.9	273.45	278.2	274.75	278.2	279.85
12.	278.4	278.3	278.45	277.7	278.15	274.25	274.8	272.8	278.45	274.7	278.3	285.6
13.	278.4	278.2	278.5	277.9	278.5	273.9	274.7	273.0	282.45	274.8	278.1	283.35
14.	278.5	278.2	278.5	278.0	278.55	273.8	a	273.2	281.85	274.8	277.9	280.35
15.	278.45	278.5	278.7	278.0	278.65	273.25	278.25	273.2	280.4	274.6	278.25	a
16.	278.3	278.5	278.5	278.4	278.4	272.95	278.4	273.05	279.4	274.5	278.5	277.25
17.	278.4	278.7	278.4	278.5	278.4	272.0	278.05	272.8	279.75	273.75	278.3	277.6
18.	278.5	278.7	278.5	278.4	278.4	272.35	277.4	272.6	280.2	274.0	278.25	277.95
19.	278.5	278.7	278.45	278.5	278.35	273.35	276.95	272.75	279.5	275.4	278.55	278.2
20.	278.4	278.5	278.4	278.5	278.25	273.5	276.2	272.8	279.1	276.7	278.3	278.25
21.	278.4	278.4	278.45	278.85	278.4	273.1	276.65	272.8	277.9	278.9	278.4	278.75
22.	278.4	278.1	278.45	278.25	278.3	273.1	275.7	272.9	278.6	279.3	278.5	278.3
23.	278.3	278.35	278.7	277.9	278.1	273.05	275.85	272.6	280.6	279.1	278.15	278.45
24.	278.5	278.5	278.45	278.4	279.65	273.1	275.7	272.5	285.3	277.9	278.45	278.4
25.	278.5	278.45	278.4	278.5	279.65	273.1	275.6	272.4	283.15	270.6	278.35	278.2
26.	278.7	278.5	278.5	278.5	278.55	273.4	275.35	272.2	282.8	275.5	278.2	278.1
27.	278.45	278.4	278.4	278.7	278.2	273.45	275.1	278.7	283.55	276.2	278.6	278.45
28.	278.4	278.5	278.5	278.5	277.85	273.5	275.65	284.95	283.7	277.0	278.25	278.2
29.	278.45	278.5	278.5	278.5	278.3	273.85	274.25	.....	280.45	278.5	279.1	278.4
30.	278.4	278.5	278.7	278.5	a	274.05	274.9	.....	278.45	278.5	279.0	279.3
31.	278.4	278.45	.....	278.45	.....	273.5	275.75	.....	277.0	.....	278.4	.....

a No record.

MOHAWK RIVER AT TRIBES HILL

This station, established January 7, 1904, is located at the suspension bridge over the Mohawk river, connecting the villages of Tribes Hill and Fort Hunter. This bridge lies just below movable dam No. 8 at Tribes Hill and over the lower guide-wall of Barge canal lock No. 12.

Discharge was formerly computed at this station, but this was discontinued because of the destruction of the control, due to Barge canal construction. The station is now maintained for water-surface elevations only. The gage is a standard chain, attached to the downstream side of the bridge near the left bank or north end and is read twice daily—at about 8 A. M. and 4 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT TRIBES HILL for the year ended June 30, 1917. A. W. Van Vliet, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	267.0	266.9	267.2	266.95	267.05	269.15	265.5	271.1	273.75	267.85	266.5	267.35
2.....	266.5	266.85	267.15	267.15	267.2	267.75	265.85	270.4	271.95	270.75	267.35	267.45
3.....	267.4	266.3	266.4	266.45	267.2	267.95	266.4	270.15	270.9	270.4	267.8	267.05
4.....	267.4	267.0	266.5	267.0	267.2	267.15	266.35	269.5	270.35	269.4	267.25	267.2
5.....	267.2	266.15	266.5	267.1	267.35	267.9	266.7	268.85	269.95	268.65	267.45	266.9
6.....	266.9	266.25	266.55	266.85	267.1	268.1	266.7	269.25	269.5	267.75	268.9	267.2
7.....	266.95	266.45	266.85	266.9	267.05	267.6	267.65	269.4	269.15	268.5	267.95	267.15
8.....	267.0	266.35	267.0	267.0	267.15	267.25	267.1	269.3	269.0	267.3	267.75	268.15
9.....	267.2	266.25	267.1	267.25	266.9	266.35	266.9	269.1	269.2	266.5	267.65	268.4
10.....	266.85	266.8	266.9	267.15	267.05	267.55	266.6	269.0	269.35	265.4	267.05	268.0
11.....	267.2	267.0	267.05	267.05	266.7	265.95	266.45	268.5	269.2	264.7	267.05	268.85
12.....	266.85	267.15	267.2	267.2	267.0	264.05	267.1	268.3	270.05	264.8	267.0	274.35
13.....	266.75	267.25	267.2	266.65	267.1	263.65	268.05	268.4	273.6	264.9	266.65	272.15
14.....	267.1	266.8	267.15	267.05	267.15	263.35	268.3	268.45	272.35	264.6	266.8	269.55
15.....	267.2	266.95	267.15	267.35	267.25	263.45	272.2	268.4	271.2	264.15	267.05	267.75
16.....	266.85	267.05	267.45	267.0	266.8	262.45	272.2	268.4	270.6	263.7	267.45	266.55
17.....	267.0	266.9	267.1	267.1	267.0	262.65	272.05	268.2	270.85	263.2	267.25	268.15
18.....	266.95	266.95	267.1	267.35	267.25	261.2	271.6	268.05	271.3	263.4	267.3	265.7
19.....	267.0	267.0	267.05	267.2	267.05	261.9	271.15	267.9	270.7	264.45	267.4	265.7
20.....	267.2	266.3	267.25	267.2	267.25	262.2	271.1	267.7	269.8	266.25	267.45	267.4
21.....	267.05	266.05	267.15	267.35	267.15	262.2	270.9	267.55	269.35	268.2	267.2	267.5
22.....	266.95	267.05	267.15	267.5	267.1	262.45	270.55	267.4	270.4	263.5	267.15	267.3
23.....	266.85	266.9	267.3	267.4	266.9	262.95	270.5	267.25	272.35	268.1	267.05	267.05
24.....	267.0	267.15	266.85	267.05	268.0	262.9	270.5	267.3	274.45	267.35	267.15	267.0
25.....	266.85	267.2	267.1	267.2	268.75	263.1	270.4	267.3	272.85	266.35	267.25	267.35
26.....	267.05	267.2	267.2	267.3	267.4	262.95	270.2	267.05	272.75	265.75	267.05	267.1
27.....	267.25	267.15	267.05	267.2	267.35	263.55	270.1	272.55	272.7	265.25	267.4	267.15
28.....	267.15	267.2	267.15	267.1	267.0	263.65	270.1	275.0	273.15	265.25	267.2	267.15
29.....	267.2	267.1	267.0	267.3	267.3	264.05	269.8	.....	270.0	266.35	267.9	267.35
30.....	267.05	267.35	267.25	266.95	268.6	265.35	270.15	.....	268.35	266.3	268.4	268.45
31.....	266.95	267.2	.....	267.05	.....	265.7	271.0	.....	267.15	.....	267.7	.....

MOHAWK RIVER AT SCHENECTADY

This station, established April 3, 1904, is located at the Washington avenue bridge over the Mohawk river between Schenectady and Scotia, commonly known as the Scotia bridge. This station is 4 miles above site of the old State dam at Rexford, which had a crest 675 feet long at Elev. 209.5, but is now submerged by the closure on June 9, 1913, of Vischer Ferry dam, with a crest 1,918.7 feet long at Elev. 211.0, located 4.3 miles farther downstream.

The original staff gage, secured to the downstream end of the first pier from the east bank, was replaced on April 12, 1917, by a standard Type A gage, No. 139, in the same location, having a range of 24 feet, between elevations 208.0 and 232.0. A standard bench-mark plug is set near the gage at elevation 220.0 (B. C. datum). The gage is read twice daily — at 8 A. M. and between 4 and 6 P. M.— to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT SCHENECTADY for the year ended June 30, 1917. W. C. Vrooman, Peter Lebeis, Observer^s

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	211.85	211.6	211.55	211.6	211.8	214.6	212.3	212.8	214.5	.....	212.85	212.45
2.....	211.7	211.6	211.5	211.6	211.85	213.15	212.3	212.8	213.5	.....	213.4	212.45
3.....	211.9	211.7	211.5	211.6	211.8	212.65	212.3	212.8	212.8	.....	213.4	212.35
4.....	211.95	211.6	211.6	211.6	211.65	212.75	212.3	212.8	211.5	.....	213.3	212.45
5.....	212.1	211.6	211.5	211.5	212.05	212.85	212.3	212.8	212.3	.....	213.05	212.15
6.....	212.05	211.6	211.5	211.5	211.8	213.3	212.5	212.8	212.0	.....	214.25	212.05
7.....	211.7	211.6	211.55	211.75	211.7	212.9	212.75	212.8	212.0	.....	213.9	212.1
8.....	211.7	211.5	211.5	211.5	211.8	212.4	212.8	212.8	212.0	.....	213.55	213.5
9.....	211.6	211.5	211.6	211.5	212.2	212.5	212.8	212.8	212.1	.....	213.2	213.5
10.....	211.6	211.5	211.6	211.6	212.0	213.05	212.6	212.8	212.1	.....	213.05	213.3
11.....	211.6	211.5	211.6	211.6	211.95	212.85	212.6	212.0	212.1	.....	212.8	214.8
12.....	211.6	211.5	211.5	211.6	211.7	212.5	212.6	212.0	212.5	.....	212.75	220.4
13.....	211.7	211.5	211.5	211.6	211.75	212.3	212.6	212.0	213.95	212.65	212.4	218.1
14.....	211.6	211.5	211.5	211.8	211.8	212.3	212.5	212.0	213.55	212.6	212.65	215.1
15.....	211.7	211.5	211.5	211.6	211.8	212.35	212.5	212.0	213.05	212.45	212.4	214.25
16.....	211.8	211.5	211.7	211.5	211.95	212.3	212.8	212.0	212.7	212.25	212.6	213.2
17.....	211.8	211.5	211.7	211.5	211.85	211.8	212.6	212.0	212.7	212.1	212.35	213.15
18.....	211.8	211.6	211.5	211.5	211.75	211.8	212.6	212.0	.....	212.25	212.3	212.45
19.....	211.8	211.6	211.6	211.5	211.7	211.8	212.6	212.0	.....	212.5	212.3	212.1
20.....	211.7	211.5	211.55	211.5	211.7	211.9	212.6	212.0	.....	213.1	212.25	212.3
21.....	211.6	211.5	211.5	211.95	211.9	211.9	212.6	212.0	.....	214.5	212.05	213.1
22.....	211.6	211.5	211.55	211.8	211.8	212.05	212.6	212.0	.....	214.7	212.15	212.45
23.....	211.6	211.5	212.05	211.65	211.75	212.3	212.3	211.5	.....	214.7	212.2	212.3
24.....	211.8	211.5	211.7	211.7	212.6	212.3	212.3	211.5	.....	214.15	212.1	212.2
25.....	211.8	211.6	211.5	211.65	213.3	212.3	212.3	211.5	.....	213.4	212.15	212.5
26.....	211.8	211.5	211.5	211.6	212.8	212.3	212.3	211.5	.....	212.85	211.85	212.2
27.....	211.8	211.5	211.75	211.7	212.35	212.3	212.0	211.5	.....	212.65	212.05	212.45
28.....	212.0	211.5	211.7	211.7	212.1	212.3	212.0	215.3	.....	212.75	212.0	212.6
29.....	211.8	211.5	211.7	211.6	211.95	212.3	212.0	.....	.....	212.45	212.7	212.55
30.....	211.7	211.5	212.1	211.6	213.9	212.3	212.0	.....	.....	212.24	214.2	213.85
31.....	211.6	211.5	.....	211.6	.....	212.3	212.0	.....	.....	.....	213.6	.....

NOTE.—Gage destroyed by flood March 17. New gage established April 12.

MOHAWK RIVER AT REXFORD

This station, originally established by the United States Deep Waterways Commission December 8, 1898, and now maintained by this Department, is located on the Mohawk river at Rexford (Aqueduct) about 3.7 miles below the N. Y. C. R. R. bridge at Schenectady. Previous to January 20, 1915, a chain gage was located on the right, or south abutment, a few feet above the crest of the old State dam. Beginning January 20, 1915, a staff gage on the upstream side of the south abutment of the old Erie canal aqueduct 800 feet below the dam was used. On January 24, 1917, this gage was replaced by a standard Type A gage, No. 138, at the same location, having a range of 20 feet, between elevations 210.0 and 230.0. A standard bench-mark plug is set near the gage at elevation 216.0 (B. C. datum).

The gage is read once daily—during the morning—to tenths.

The old State dam with crest at elevation 209.5 was submerged by the closure on June 9, 1913, of the new Vischer Ferry dam.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT CANAL AQUEDUCT, REXFORD, for the year ended June 30, 1917. J. Reepmeyer, Jr., Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	211.5	211.6	211.5	211.6	211.9	213.1	212.6	212.6	211.6	213.0	212.0	212.2
2.....	211.5	211.6	211.5	211.6	211.9	213.8	212.6	212.6	211.6	213.3	212.0	212.0
3.....	211.5	211.5	211.5	211.6	211.8	213.0	212.6	212.6	211.6	214.7	212.0	212.0
4.....	211.5	211.5	211.5	211.6	211.8	212.4	212.6	212.6	211.6	213.95	212.0	212.0
5.....	211.5	211.4	211.5	211.6	211.5	212.7	212.6	212.6	211.6	213.65	212.0	212.0
6.....	211.5	211.4	211.5	211.6	211.5	212.1	212.6	212.6	211.6	213.0	212.2	212.0
7.....	211.5	211.4	211.5	211.6	211.5	212.8	212.6	212.6	211.6	213.0	212.2	212.4
8.....	211.5	211.3	211.4	211.7	211.5	212.8	212.6	212.6	211.6	213.0	212.6	212.4
9.....	211.5	211.3	211.4	211.7	211.5	212.8	212.6	212.6	211.6	212.9	212.8	212.6
10.....	211.5	211.3	211.4	211.7	211.5	213.4	212.6	212.6	211.6	212.5	212.65	213.3
11.....	211.5	211.3	211.4	211.7	211.5	213.0	212.6	211.6	211.6	212.5	212.5	213.95
12.....	211.5	211.4	211.4	211.7	211.6	212.1	212.6	211.6	212.0	212.4	212.45	216.75
13.....	211.5	211.4	211.4	211.7	211.6	212.8	212.6	211.6	212.0	212.4	212.4	215.15
14.....	211.5	211.6	211.4	211.7	211.6	212.8	212.8	211.6	212.0	212.3	212.3	214.3
15.....	211.6	211.6	211.4	211.7	211.6	212.6	212.8	211.6	212.0	212.1	212.6	213.7
16.....	211.7	211.5	211.4	211.7	211.7	212.6	212.8	211.6	212.6	212.1	212.6	213.0
17.....	211.7	211.5	211.4	211.7	211.7	212.8	212.8	211.6	212.6	212.5	212.4	212.1
18.....	211.7	211.5	211.4	211.9	211.7	212.8	212.8	211.6	212.6	212.4	212.4	211.85
19.....	211.6	211.5	211.4	211.9	211.8	212.8	212.8	211.6	212.6	212.4	212.1	211.6
20.....	211.6	211.5	211.4	212.8	211.8	212.8	212.8	211.6	212.6	212.6	211.6	211.6
21.....	211.6	211.5	211.5	212.6	211.8	212.8	212.8	211.6	212.8	213.5	211.6	212.1
22.....	211.6	211.5	211.5	212.3	211.8	212.8	212.8	211.6	212.85	213.55	211.8	212.6
23.....	211.6	211.5	211.5	212.0	212.9	212.8	212.8	211.6	213.0	213.2	211.8	212.6
24.....	211.6	211.5	211.6	212.0	213.0	212.8	212.6	211.6	216.8	213.0	211.8	212.75
25.....	211.6	211.5	211.6	211.9	213.0	212.8	212.6	211.6	221.7	212.7	211.8	212.5
26.....	211.6	211.5	211.7	211.9	212.1	212.8	212.6	211.6	221.1	212.4	211.8	212.4
27.....	211.6	211.5	211.7	211.9	212.8	212.8	212.6	211.6	216.1	212.0	212.0	212.1
28.....	211.6	211.5	211.7	211.9	212.6	212.8	212.6	211.6	214.9	212.0	212.0	212.1
29.....	211.6	211.5	211.7	211.8	212.4	212.8	212.6	.....	215.5	211.8	212.2	212.2
0.....	211.6	211.5	211.7	211.8	214.0	212.8	212.6	.....	214.25	212.0	212.4	212.4
1.....	211.6	211.6	.....	211.7	.....	a	212.6	.....	213.15	.....	212.4	.....

aNo record.

NOTE.— Previous to July 15 this gage was read to nearest 0.5 foot.

MOHAWK RIVER AT VISCHER FERRY DAM

Location.—At the Vischer Ferry dam of the Barge canal (lock No. 7), 1 mile above Stony creek and Vischer Ferry, about 7 miles below Schenectady, Schenectady county, and about 11 miles above the mouth.

Drainage area.—3,400 square miles. (Measured on U. S. G. S. topographic maps.)

Records available.—June 24, 1913, to June 30, 1917.

Gage.—Stevens water-stage recorder (showing head on crest of spillway), in the southerly corner of the basin near upper end of Barge canal lock; inclined staff at foot of an old bridge abutment about 100 feet above Vischer Ferry, read June 24 to December 16, 1913, and May 24 to June 2, 1914; staff gage in masonry of outer lock wall, just above upper gates, read March 30 to May 23, 1914, and March 30 to August 17, 1916. Datum of staff gage 12.1 feet lower than that of recorder. Gurley water-stage recorder in the northerly (out-stream) corner of the basin, used December 17, 1913, to March 29, 1914, and May 24, 1914, to February 23, 1916. This gage was destroyed by ice April 2, 1916, and the record from February 24 to date was lost with it. Water-stage recorder inspected by an engineer from the Albany office of the United States Geological Survey; staff gage read by lock-tenders.

Discharge measurements.—Made by wading below the dam at low water during 1913-14. During the spring of 1915 the Crescent dam (next downstream) was closed, making further measurements impossible. No provision for measurements at medium and high stages.

Channel and control.—The control is the crest of the spillway.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 4.07 feet at 9 A. M., June 12; discharge, 51,500 second-feet. Minimum stage from water-stage recorder, 0.37 foot at 11:20 A. M., September 4; discharge, 1,050 second-feet.

1913-1917: Maximum stage recorded, 7.6 feet just before noon, March 28, 1914, determined by leveling from flood marks;

approximate discharge, estimated by New York State Engineer, 140,000 second-feet. This stage lasted but a few moments and was caused by the breaking of an ice jam near Schenectady.

Diversions.—Water was diverted into Erie canal at temporary lock in north end of dam prior to December, 1914. Measurements of this diversion were made at bridge No. 48, about a mile downstream, but no allowance for the diversion was given in computing the flow.

Barge canal lock No. 7, at the south end of dam, was put in operation May 15, 1915. The following tables of discharge include the flow over the spillway and through the lock and water-wheels.

Accuracy.—Stage-discharge relation practically permanent. Probably not affected by ice. Rating curve fairly well defined by discharge measurements between 350 and 2,500 second-feet. Above 2,500 second-feet based on theoretic coefficients. Gage in lock read to tenths twice daily, July 1 to August 17. Operation of water-stage recorder, August 18 to June 30, satisfactory except for period in March, when float well was frozen. Daily discharge ascertained from staff gage record by applying mean daily gage height to rating table. Daily discharge from August 18 to June 30 determined by discharge integration. Results fairly good for periods of low water, when the water-stage recorder was in operation. Results fair for other periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Daily discharge, in second-feet, of MOHAWK RIVER AT VISCHER FERRY DAM, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	2,610	3,380	1,740	2,750	1,460	18,200	3,380	4,670	14,200	16,200	7,670	6,870
2.....	3,010	1,890	1,670	1,960	1,190	12,500	3,380	5,120	10,100	30,000	11,000	7,310
3.....	4,230	2,220	1,610	2,150	881	9,840	4,220	4,670	7,620	32,400	11,800	5,920
4.....	8,060	1,880	1,480	1,320	952	7,330	5,120	3,780	6,020	25,400	10,400	5,910
5.....	5,120	1,890	1,480	1,200	1,760	10,100	5,120	3,380	5,120	21,700	10,200	4,360
6.....	3,790	1,300	1,660	1,500	2,420	11,700	5,930	3,380	4,220	18,200	16,400	4,680
7.....	3,380	1,590	1,740	2,090	3,130	10,600	6,720	3,380	4,220	20,300	13,500	4,830
8.....	2,260	1,260	1,420	1,280	3,700	8,070	7,520	3,380	4,220	17,000	12,300	11,800
9.....	1,900	1,890	1,560	1,130	2,590	8,320	7,120	3,380	4,220	13,600	10,500	12,300
10.....	2,210	1,250	1,510	1,440	3,040	10,300	6,820	2,580	4,670	10,500	9,570	12,100
11.....	3,790	1,240	1,080	1,090	3,560	10,000	6,620	2,580	4,670	8,920	8,690	13,600
12.....	1,880	1,550	1,030	955	2,400	7,800	6,120	2,580	4,220	8,520	8,370	48,300
13.....	2,220	1,580	1,120	977	2,230	7,030	6,220	2,580	11,800	8,620	7,540	36,600
14.....	1,880	1,550	1,080	1,120	3,570	5,390	5,840	2,580	10,600	8,620	6,810	23,800
15.....	6,020	1,260	2,090	1,570	3,720	5,450	5,700	2,580	9,020	7,420	5,620	17,400
16.....	3,840	1,880	3,400	919	3,720	7,030	7,620	2,580	8,020	6,720	5,040	11,500
17.....	2,610	2,240	2,080	1,440	2,950	3,160	7,020	2,580	7,520	5,660	7,090	10,400
18.....	2,220	2,080	1,320	907	3,390	2,690	5,840	2,220	8,020	5,930	5,480	8,380
19.....	2,980	1,630	1,080	1,170	2,980	3,460	4,940	1,870	8,020	6,610	5,100	5,910
20.....	2,240	1,800	880	2,270	3,310	3,540	4,580	1,870	6,520	10,200	5,270	6,340
21.....	2,600	1,430	1,070	4,780	3,860	3,860	4,040	1,870	5,570	17,100	4,780	9,740
22.....	1,890	1,880	1,250	5,760	3,300	4,270	3,780	1,870	6,020	18,700	4,930	7,520
23.....	1,580	1,420	2,780	3,780	2,670	4,760	3,780	1,870	9,900	17,700	4,910	5,240
24.....	3,390	1,200	1,900	2,380	8,060	5,480	3,780	1,870	20,800	14,900	4,660	6,880
25.....	2,240	1,480	1,630	2,820	14,300	5,300	3,700	1,870	39,200	11,600	4,770	7,640
26.....	1,880	1,880	1,670	1,790	9,740	4,040	3,380	1,870	41,000	9,120	4,890	6,110
27.....	3,390	1,950	2,280	2,160	6,720	4,130	3,140	2,220	47,400	8,320	4,830	7,880
28.....	3,800	1,740	1,810	2,020	5,620	4,580	3,140	16,200	46,400	6,670	5,130	7,370
29.....	3,000	1,760	2,010	1,320	5,840	4,400	2,580	.....	30,800	5,350	9,430	7,200
30.....	3,410	1,880	3,450	1,000	15,100	4,220	2,980	.....	22,400	5,650	15,900	14,900
31.....	2,220	1,750	.....	1,070	.....	4,220	4,220	.....	16,500	.....	10,400	.....
Mean...	3,090	1,720	1,690	1,870	4,270	6,830	4,980	3,260	13,800	13,000	8,160	11,300

NOTE.—See "Diversions" in station description.

Monthly discharge of MOHAWK RIVER AT VISCHER FERRY DAM, for the year ended June 30, 1917

[Drainage area, 3,400 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	8,060	1,580	3,090	0.909	1.05
August.....	3,380	1,200	1,720	0.506	0.58
September.....	3,450	880	1,690	0.497	0.55
October.....	5,760	907	1,870	0.550	0.63
November.....	15,100	881	4,270	1.26	1.41
December.....	18,200	2,690	6,830	2.01	2.32
January.....	7,620	2,580	4,980	1.46	1.68
February.....	16,200	1,870	3,260	0.959	1.00
March.....	47,400	4,220	13,800	4.06	4.68
April.....	32,400	5,350	13,300	3.91	4.36
May.....	16,400	4,680	8,160	2.40	2.77
June.....	48,300	4,360	11,300	3.32	3.70
The year.....	48,300	880	6,200	1.82	24.73

NOTE.—See "Diversions" in station description.

In addition to the record obtained at this station by the United States Geological Survey, the concrete staff gage on the upper end of Barge canal lock No. 7 is read by this Department twice daily to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER ABOVE VISCHER FERRY DAM, for the year ended June 30, 1917. H. V. Button, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	211.7	211.8	211.55	211.8	211.8	213.15	211.8	211.95	212.85	213.0	212.3	212.1
2.....	211.75	211.6	211.55	211.7	211.8	212.45	211.8	212.0	212.5	214.02	212.7	212.3
3.....	211.9	211.65	211.5	211.8	211.7	212.45	211.9	211.95	212.25	214.05	212.8	212.15
4.....	212.3	211.6	211.5	211.55	211.7	212.1	212.05	211.85	212.1	213.55	212.6	212.1
5.....	212.0	211.6	211.6	211.5	212.3	212.5	212.0	211.8	212.0	213.35	212.6	211.85
6.....	211.85	211.5	211.5	211.6	212.0	212.6	212.1	211.8	211.9	213.1	213.0	212.05
7.....	211.8	211.55	211.5	211.95	211.9	212.45	212.15	211.8	211.9	213.2	212.85	212.0
8.....	211.65	211.5	211.5	211.6	211.9	212.2	212.3	211.8	211.9	212.9	212.8	212.75
9.....	211.6	211.6	211.5	211.55	211.8	212.25	212.25	211.8	211.9	212.65	212.7	212.85
10.....	211.65	211.5	211.55	211.65	211.75	212.45	212.2	211.7	211.95	212.4	212.65	212.6
11.....	211.85	211.5	211.5	211.55	211.85	212.45	212.2	211.7	211.95	212.2	212.55	212.95
12.....	211.6	211.55	211.6	211.55	211.75	212.3	212.1	211.7	211.9	212.3	212.35	215.0
13.....	211.65	211.55	211.55	211.6	211.8	212.2	212.05	211.7	212.65	212.25	212.3	214.3
14.....	211.6	211.55	211.55	211.55	211.85	212.1	212.1	211.7	212.55	212.25	212.75	213.4
15.....	212.1	211.5	211.65	211.6	211.8	212.1	212.1	211.7	212.4	212.2	212.05	213.3
16.....	211.85	211.6	211.75	211.5	211.9	212.2	212.3	211.7	212.3	212.1	211.9	212.6
17.....	211.7	211.65	212.0	211.7	211.8	212.3	211.7	212.25	212.0	212.05	212.45	
18.....	211.65	211.55	211.6	211.5	211.85	211.75	212.1	211.65	212.3	212.1	212.0	212.2
19.....	211.75	211.55	211.5	211.5	211.75	211.85	212.0	211.6	212.3	212.3	211.75	212.05
20.....	211.65	211.5	211.55	211.7	211.8	211.85	212.0	211.6	212.15	212.65	211.9	212.1
21.....	211.7	211.5	211.5	212.1	211.85	211.9	211.9	211.6	212.05	213.15	211.8	212.7
22.....	211.6	211.5	211.6	211.9	211.8	211.95	211.9	211.6	212.1	213.25	212.05	212.25
23.....	211.55	211.5	211.75	211.85	211.85	211.95	211.9	211.6	212.48	213.1	212.05	211.9
24.....	211.8	211.45	211.7	211.65	212.5	212.05	211.9	211.6	213.4	212.5	212.0	212.3
25.....	211.65	211.5	211.6	211.8	212.85	212.1	211.9	211.6	214.55	212.3	211.95	212.25
26.....	211.6	211.6	211.6	211.6	212.6	211.9	211.9	211.6	215.35	212.6	211.9	212.1
27.....	211.8	211.65	211.75	211.65	212.2	211.9	211.85	211.65	214.91	212.35	211.9	212.3
28.....	211.85	211.6	211.55	211.65	212.1	212.0	211.8	213.0	215.0	212.2	212.0	212.25
29.....	211.75	211.6	211.65	211.6	212.0	211.95	211.7	.....	213.85	212.1	212.4	212.1
30.....	211.8	211.6	211.8	211.6	213.0	211.9	211.75	.....	213.4	212.1	212.95	212.8
31.....	211.65	211.6	.....	211.7	.....	211.95	211.9	.....	212.95	.....	212.5	.....

MOHAWK RIVER BELOW VISCHER FERRY DAM

This station, established May 1, 1916, is located below the Vischer Ferry dam on the Mohawk river and indicates the water-surface at the upstream end of the canalized pool formed by the Crescent dam. The vertical staff concrete gage on the lower end of Barge canal lock No. 7 is read twice daily to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER BELOW VISCHER FERRY DAM, for the year ended June 30, 1917. H. V. Button, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	184.7	184.8	184.5	184.7	184.6	186.7	184.8	185.1	186.5	186.5	185.35	185.3
2.....	184.75	184.6	184.5	184.7	184.6	185.87	184.8	185.0	185.65	188.0	185.85	185.5
3.....	184.9	184.6	184.5	184.75	184.6	185.65	184.9	184.9	185.35	188.3	185.95	185.3
4.....	185.3	184.55	184.5	184.55	184.7	185.35	185.1	184.75	185.2	187.5	185.9	185.2
5.....	185.15	184.55	184.5	184.45	185.2	185.65	185.05	184.7	185.1	187.05	185.75	185.2
6.....	185.05	184.5	184.4	184.5	185.0	185.9	185.3	184.7	185.0	186.7	186.5	184.95
7.....	184.7	184.55	184.5	184.8	185.0	185.65	185.25	184.7	184.95	186.8	186.15	185.0
8.....	184.65	184.4	184.5	184.6	184.85	185.45	185.45	184.7	184.9	186.55	186.05	185.8
9.....	184.7	184.6	184.5	184.5	184.75	185.45	185.4	184.8	184.9	186.05	185.9	186.9
10.....	184.6	184.5	184.5	184.5	184.65	185.7	185.3	184.7	184.95	185.75	185.8	186.0
11.....	184.9	184.4	184.45	184.5	184.8	185.65	185.35	184.7	185.0	185.5	185.65	186.05
12.....	184.6	184.5	184.5	184.45	184.8	185.4	185.15	184.6	185.0	185.4	185.65	186.85
13.....	184.65	184.55	184.5	184.55	184.75	185.3	185.0	184.6	185.9	185.45	185.4	188.8
14.....	184.6	184.45	184.5	184.45	184.85	185.25	185.0	184.7	185.95	185.45	185.9	187.35
15.....	185.1	184.3	184.65	184.4	184.9	185.3	185.1	184.65	185.7	185.9	185.2	186.65
16.....	184.75	184.55	184.7	184.5	184.95	a	185.4	184.7	185.55	185.2	184.95	185.9
17.....	184.7	184.6	185.0	184.6	184.75	a	184.4	184.7	185.4	185.1	185.15	185.65
18.....	184.65	184.45	184.6	184.45	184.75	a	185.2	184.6	185.5	185.1	185.0	185.45
19.....	184.65	184.55	184.6	184.5	184.7	184.75	185.1	184.6	185.5	185.4	184.9	185.2
20.....	184.65	184.55	184.6	184.7	184.8	184.8	185.0	184.6	185.3	185.8	185.0	185.25
21.....	184.7	184.4	184.5	185.0	184.8	184.8	185.0	184.6	185.2	186.55	184.95	185.7
22.....	184.6	184.4	184.6	185.2	184.75	184.9	184.9	184.6	185.25	186.85	185.0	185.45
23.....	184.5	184.5	184.75	184.8	184.75	184.95	184.9	184.6	185.75	186.65	185.0	185.2
24.....	184.8	184.4	184.7	184.75	185.35	185.0	184.9	184.6	187.7	186.5	185.1	185.3
25.....	184.8	184.4	184.65	184.7	186.15	185.1	184.9	184.6	190.15	185.9	185.0	185.4
26.....	184.6	184.5	184.5	184.55	185.8	184.9	184.9	184.6	190.4	186.15	185.0	185.25
27.....	184.85	184.6	184.65	184.6	185.25	184.9	184.8	184.85	193.6	185.65	184.9	185.5
28.....	184.9	184.6	184.5	184.65	185.15	185.05	184.8	186.6	191.55	185.45	185.0	185.3
29.....	184.75	184.5	184.65	184.75	185.05	185.0	184.7	.....	184.15	185.5	185.45	185.2
30.....	184.8	184.55	184.65	184.6	186.0	184.9	184.75	.....	187.25	185.35	186.4	186.25
31.....	184.6	184.55	.....	184.6	.....	184.85	184.8	.....	186.55	.....	185.8	.....

a No record; gage inaccessible.

MOHAWK RIVER AT DUNSBAUGH FERRY

This station, maintained March 12, 1898, to April 1, 1899, by the United States Deep Waterways Commission, was reestablished August 1, 1900, by the United States Geological Survey in coöperation with this Department and is now maintained by this Department. It is located at the Watervliet pumping station on the right, or south bank of the Mohawk river at the site of the old Dunsbach Ferry dam, about 3 miles above the old Erie canal aqueduct at the village of Crescent, about 5.6 miles below the new Vischer Ferry dam and about 4.6 miles above the new Crescent dam. Discharge computations were discontinued in 1911 and the old dam was partially removed in August, 1912.

The original gage was a staff in three sections, having a range of 17 feet, the lower two sections, from 2.0 to 9.0, being secured to crib work, and the upper sections, from 9.0 to 19.0, being secured to the wall of the pump-house. Reference points were

used from October 22, 1914, to March 6, 1916, when a staff gage was erected. This was replaced on January 16, 1917, by a standard Type A gage, No. 135, secured to the northwest corner of the Watervliet Hydraulic Company's pump-house and having a range of 12.0 feet, between elevations 183.0 and 195.0. A standard bench-mark plug is set near the gage at elevation 190.0 (B. C. datum).

The gage is read twice daily—at 8 A. M. and 4 P. M.—to tenths.

Emendation.—Owing to transposition of figures the elevation of the reference point on the door-sill has been used as 191.12 instead of 191.21. All elevations from October 15, 1912, to March 5, 1916, inclusive, should be 0.09 higher.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT DUNSBACK FERRY, for the year ended June 30, 1917. Robert Wilson, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	184.8	184.5	184.4	184.7	184.85	186.3	184.7	184.8	186.7	186.1	185.5	185.45
2	181.8	181.5	184.4	184.6	181.85	185.65	184.7	184.75	186.6	187.45	185.75	185.35
3	181.8	184.4	184.4	181.6	184.75	185.45	181.8	184.7	186.5	187.5	185.9	185.1
4	184.7	184.5	184.4	184.7	184.65	185.3	184.95	184.7	186.35	187.05	185.8	185.1
5	184.75	184.5	184.5	184.7	181.9	185.45	184.9	184.6	186.0	186.75	185.6	185.0
6	184.85	184.4	181.45	184.6	184.9	185.65	185.05	184.6	185.85	186.7	186.1	184.95
7	184.85	184.4	184.4	181.6	184.8	185.7	185.15	184.6	185.75	186.7	186.15	185.0
8	181.8	181.35	184.4	181.5	184.8	185.4	185.2	184.6	185.6	186.55	185.95	185.8
9	181.85	181.3	181.4	184.55	184.8	185.4	185.2	184.6	185.45	186.15	186.1	186.0
10	184.95	184.4	181.5	184.6	184.7	185.6	185.1	184.6	185.4	185.55	185.65	185.85
11	185.05	184.4	181.45	184.7	181.6	185.55	185.05	184.6	185.5	185.4	185.6	185.8
12	181.85	181.4	181.4	184.65	184.6	185.4	185.0	181.5	185.6	185.4	185.6	189.0
13	184.8	181.3	181.5	184.6	184.7	185.15	181.9	184.5	185.65	185.4	185.5	184.1
14	184.9	184.35	184.6	181.6	181.8	181.65	184.8	184.5	185.7	185.4	185.45	187.1
15	184.95	184.4	184.75	184.5	184.8	184.7	184.85	184.4	185.6	185.3	185.3	186.55
16	181.95	184.4	181.8	184.55	181.8	181.7	185.15	184.4	185.55	185.2	185.2	186.05
17	181.85	181.3	181.7	181.6	181.8	181.7	185.2	184.4	185.5	185.2	185.3	185.8
18	181.75	181.3	184.65	184.6	181.8	184.6	185.05	184.45	185.6	185.1	185.25	185.45
19	184.7	184.3	184.6	184.65	184.85	184.6	185.0	184.5	185.6	185.1	185.2	185.15
20	184.75	184.3	181.6	184.8	184.85	184.6	184.9	184.4	185.75	185.4	185.1	185.15
21	184.8	184.3	184.5	184.95	184.8	184.6	184.9	184.4	185.8	185.45	185.05	185.3
22	184.65	184.3	184.5	184.95	184.8	184.7	184.8	181.45	186.0	186.4	185.6	185.2
23	184.6	184.25	184.5	181.8	184.8	184.9	184.8	184.5	186.3	186.3	185.0	185.1
24	184.65	184.2	184.55	184.7	184.5	185.0	184.8	184.45	186.6	186.1	184.9	185.1
25	184.6	184.3	184.6	184.65	186.5	184.9	184.7	184.4	188.05	185.95	184.9	185.15
26	184.65	184.3	184.5	184.65	185.8	184.8	184.7	184.8	189.4	185.65	184.85	185.2
27	184.7	184.3	184.5	184.6	185.4	184.7	184.7	185.8	191.25	185.5	184.85	185.15
28	184.6	184.35	184.4	184.5	185.1	184.7	184.75	185.95	190.85	185.4	184.8	185.1
29	184.65	184.4	184.7	184.5	186.0	184.7	184.8	.....	187.6	185.2	185.9	185.05
30	184.7	184.4	184.85	184.5	185.8	184.7	184.75	.....	186.9	186.1	185.95	186.0
31	184.6	181.4	.....	184.6	.....	184.7	184.75	.....	186.3	.....	185.75	.....

MOHAWK RIVER ABOVE CRESCENT DAM, NEAR COHOES

This station, established October 22, 1916, is located above Crescent dam, in the guard-gate by-pass at the entrance to the land-line between Crescent dam and Waterford. The gage,

No. 134, is a standard Type A gage, secured to the north side of the pier between the guard-gate and by-pass just above the Taintor gate, and has a range of 12 feet, between elevations 182.0 and 194.0.

The gage is read twice daily—at 8 A. M. and 4 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER ABOVE CRESCENT DAM, NEAR COHOES, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					184.7	186.45	184.7	184.55	186.15	186.1	185.4	185.55
2					184.6	186.2	184.7	184.5	185.85	187.35	185.7	185.45
3					184.6	185.7	184.9	184.65	185.4	187.6	185.85	185.2
4					184.75	185.4	184.9	184.6	185.25	187.1	185.8	185.2
5					184.8	185.6	184.9	184.6	185.05	186.8	185.6	185.1
6					185.05	185.8	185.0	184.4	184.95	186.45	186.2	185.05
7					185.0	185.8	185.1	184.8	184.95	186.55	186.15	185.6
8					184.85	185.6	185.5	184.8	184.85	186.4	185.05	186.05
9					184.8	185.6	185.6	184.8	184.85	186.25	185.8	186.0
10					184.7	185.5	185.3	184.7	184.85	185.6	185.7	185.85
11					184.95	185.6	185.3	184.7	184.85	185.5	185.55	185.75
12					184.65	185.5	185.0	184.6	184.8	185.5	185.5	189.1
13					184.7	183.4	185.1	184.5	185.5	185.5	185.35	188.1
14					184.9	185.15	185.4	184.6	184.95	185.5	185.35	186.65
15					184.05	185.1	185.2	184.6	185.4	185.35	185.2	187.25
16					185.0	185.0	185.2	184.6	185.4	185.3	185.2	185.95
17					184.8	185.25	185.1	184.6	185.3	185.2	185.4	185.65
18					184.9	185.0	185.0	184.5	185.2	185.2	185.25	185.55
19					184.85	185.05	185.0	184.5	185.1	185.2	185.1	185.45
20					184.45	185.0	184.9	184.55	185.05	185.6	185.15	185.1
21					185.0	184.9	184.9	184.5	185.0	186.3	184.95	186.5
22					185.15	184.95	184.8	184.55	185.1	186.5	185.1	185.35
23					184.05	184.8	184.8	184.8	184.5	185.1	186.45	185.1
24					184.85	185.25	184.9	184.8	184.5	186.15	186.4	185.35
25					184.75	186.1	184.8	184.8	184.5	188.0	186.1	185.45
26					184.6	185.7	184.8	184.7	184.5	188.1	185.7	185.15
27					184.75	185.5	184.7	184.8	184.7	188.35	185.5	185.15
28					184.8	185.25	184.65	184.8	185.4	188.7	185.5	185.15
29					184.7	185.1	184.6	184.8		187.95	185.15	185.35
30					184.6	186.0	184.6	184.7		187.1	185.2	185.35
31					184.65		184.9	184.7		186.4		186.35

MOHAWK RIVER BELOW CRESCENT DAM, NEAR COHOES

This station, established October 22, 1916, is located below Crescent dam, at the power-house. The gage, No. 133, is a standard Type A gage, secured to the southwest corner of the power-house, and has a range of 16 feet, between elevations 157.0 and 173.0.

The gage is read twice daily—at 8 A. M. and 4 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER BELOW CRESCENT DAM, NEAR COHOES, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					157.0	159.25	157.5	157.3	159.0	159.0	158.05	158.6
2					156.8	158.8	157.5	157.45	158.6	160.15	158.35	158.3
3					157.0	158.6	157.4	157.5	158.25	160.4	158.6	157.9
4					157.5	158.1	157.6	157.5	158.15	159.9	158.8	157.75
5					157.8	158.4	157.6	157.4	157.45	159.5	158.35	157.45
6					157.6	158.25	157.7	157.2	157.7	159.4	159.0	157.5
7					157.8	158.4	158.0	157.1	157.85	159.25	158.95	158.2
8					157.6	158.3	158.0	157.3	157.55	159.15	158.85	158.75
9					157.5	158.2	158.0	157.3	157.5	159.0	158.5	158.75
10					157.2	158.4	157.95	157.1	157.5	158.5	158.5	158.7
11					157.6	158.4	157.8	157.5	157.75	158.35	158.25	158.45
12					157.45	158.25	158.0	157.0	157.55	158.2	158.35	160.95
13					157.4	157.95	157.8	155.15	158.3	158.1	158.3	160.9
14					157.55	157.75	158.0	156.35	158.55	158.2	158.05	159.25
15					157.65	157.7	157.6	157.5	158.4	158.15	157.85	160.3
16					157.5	157.65	158.0	157.0	158.25	158.1	157.8	158.7
17					157.5	157.6	158.0	155.6	158.3	157.85	157.6	158.45
18					157.5	155.5	157.8	157.2	158.1	157.85	157.8	158.3
19					157.5	157.2	158.0	155.9	157.85	157.85	157.65	157.85
20					157.6	157.2	157.8	156.9	157.7	158.35	158.0	157.9
21					157.6	157.3	158.0	155.75	157.9	158.8	157.85	158.2
22				157.9	157.4	157.3	157.6	156.2	158.0	159.4	157.75	158.05
23				157.75	157.25	157.4	157.6	155.9	158.05	159.4	157.7	157.85
24				157.5	157.8	157.65	157.6	156.8	158.8	159.1	157.65	158.1
25				157.4	158.0	158.0	157.5	156.7	160.85	158.8	157.7	157.95
26				156.75	158.65	157.5	157.4	155.95	160.45	158.5	157.6	157.95
27				157.35	158.05	157.45	157.4	157.3	161.45	158.25	157.8	157.9
28				157.4	158.3	157.55	157.45	158.15	161.6	158.2	157.75	158.0
29				157.4	157.7	157.5	157.4		160.9	157.8	158.1	157.8
30				156.95	158.9	157.5	157.3		160.0	157.8	158.5	158.25
31				157.0		157.5	157.4		159.15		159.1	

MOHAWK RIVER ABOVE DAM, COHOES

This station, established December, 1903, in coöperation with the United States Weather Bureau, but now maintained by this Department, is located above the power dam of the Cohoes Company across the Mohawk river at Cohoes. The pool above this dam extends three-quarters of a mile to the new Crescent dam. The dam has a fixed concrete crest 1,278 feet and 2 inches long at about elevation 157.0, on which flash-boards three feet high are maintained during low stages. There is also a 24-foot spillway in the gate-house. Owing to the irregular use of water for power purposes the surface above the dam fluctuates as much as 7 or 8 feet during twenty-four hours.

In October, 1916, a standard Type A gage, No. 132, in two sections, was erected on the breakwater to replace the old gage. The lower section has a range of 8 feet, between elevations 154.0

and 162.0, and the upper section has a range of 4 feet, between elevations 162.0 and 166.0. Standard bench-mark plugs are placed near the gages, for the lower section at elevation 161.0 (B. C. datum) and for the upper section at elevation 163.0 (B. C. datum).

The gage is read twice daily—morning and afternoon—to tenths.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER ABOVE DAM AT COMORA, for the year ended June 30, 1917. James Murphy, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	157.5	157.05	157.35	157.5	157.2	158.9	157.4	157.5	158.6	159.0	158.2	157.75
2.....	157.6	156.25	157.3	157.45	157.25	158.5	157.15	157.45	158.2	159.95	158.35	158.2
3.....	157.5	156.0	157.3	157.05	157.05	158.4	157.4	157.45	158.0	160.05	159.4	158.0
4.....	158.0	155.6	155.9	155.7	157.4	157.95	157.55	157.5	158.0	159.85	159.25	159.0
5.....	157.75	157.25	156.1	155.35	157.8	158.15	157.55	156.7	157.55	159.5	158.3	157.85
6.....	157.45	157.45	156.1	156.0	157.7	158.35	157.75	157.1	157.45	159.1	158.95	157.6
7.....	157.55	155.5	156.55	157.45	157.55	158.35	158.05	157.2	157.35	159.3	158.8	157.7
8.....	157.55	157.1	155.3	157.35	157.4	157.95	157.9	157.2	157.4	159.3	158.7	159.75
9.....	157.65	155.75	157.05	155.35	157.35	158.1	157.85	157.2	157.3	158.6	158.45	159.7
10.....	157.3	155.6	157.1	156.35	157.3	158.4	157.8	157.2	157.55	158.35	158.35	158.65
11.....	157.6	153.65	155.5	156.8	157.5	158.15	157.8	157.4	157.75	158.2	158.2	159.55
12.....	157.3	157.25	154.8	155.8	157.5	159.0	157.75	156.15	157.6	158.1	158.15	160.85
13.....	157.2	157.15	154.8	156.7	157.1	157.85	157.55	155.7	158.15	158.1	158.35	160.5
14.....	157.55	155.4	155.7	157.45	157.3	157.7	157.85	156.45	158.4	159.3	158.05	159.4
15.....	157.65	156.15	157.1	157.45	157.45	157.55	157.55	156.15	158.0	158.05	157.85	159.1
16.....	157.7	156.4	157.15	156.5	157.4	157.9	157.85	156.1	158.1	157.9	157.9	158.35
17.....	157.5	156.45	157.6	156.6	157.25	157.5	157.8	157.15	158.1	157.85	158.0	158.3
18.....	157.35	155.85	156.9	155.95	157.3	158.05	157.65	157.4	158.4	157.85	157.8	158.1
19.....	157.0	157.2	157.0	156.6	157.55	157.35	157.55	155.65	158.15	157.55	157.9	157.85
20.....	157.15	157.45	155.7	157.35	157.2	157.2	157.6	156.0	157.95	159.15	157.85	157.9
21.....	156.55	155.95	156.65	157.75	157.35	157.25	157.8	156.0	157.75	159.1	157.8	158.2
22.....	157.35	155.3	155.8	158.0	157.3	157.4	157.3	156.35	157.9	159.2	157.8	158.05
23.....	157.45	154.95	156.8	157.5	157.16	157.5	157.3	155.85	158.15	159.2	157.8	157.8
24.....	157.25	155.15	157.35	157.25	157.7	157.8	157.3	156.85	159.35	158.95	157.8	158.1
25.....	157.2	155.0	157.2	157.2	158.25	157.75	157.25	157.3	160.55	158.4	157.7	158.15
26.....	156.4	156.3	157.05	156.75	158.55	157.25	157.2	155.75	160.5	158.2	157.85	157.9
27.....	157.35	157.4	157.35	157.2	157.9	157.3	157.35	157.3	160.85	158.2	157.75	158.1
28.....	157.75	157.35	156.7	157.4	157.8	157.45	157.6	158.7	161.05	158.05	157.7	157.95
29.....	157.3	157.25	158.85	157.45	157.6	157.45	156.95	.....	159.85	158.25	158.1	157.95
30.....	157.45	157.25	157.1	157.65	158.75	157.45	157.2	.....	159.65	157.9	159.0	158.8
31.....	157.0	157.3	.....	157.05	.....	157.55	157.35	.....	159.0	.....	158.15	.....

MOHAWK RIVER AT WATERFORD

This station, established January 15, 1907, is located at Waterford on the most northerly branch of the Mohawk river and indicates its water-surface about 1,000 feet above its entrance to the Hudson river. As most of the flow of the Mohawk passes through the other branches, this gage also indicates closely the surface of the Hudson river at this locality, which is about $2\frac{1}{3}$ miles above the new Federal dam at Troy.

Previous to July, 1913, the gage had been located at old lock in Waterford side-cut, at the wooden bridge across the Hudson at Waterford, and on the coffer-dam below lock No. 2. On July 11, 1913, the gage was located on the north side of the timber crib approach wall to lock No. 2. On October 17, 1916, this was replaced by a standard Type A gage, No. 131, secured to the north side of the north lower concrete approach wall to lock No. 2 and having a range of 16 feet, in two sections. The lower section is between elevations 16.0 and 24.0 and the upper section between elevations 24.0 and 32.0. Standard bench-mark plugs are set, one near the lower section at elevation 23.0 (B. C. datum) and another near the upper section at elevation 28.0 (B. C. datum).

The gage is read twice daily—at 7 A. M. and 4 or 5 P. M.—to tenths, until November 1, and to half-tenths since that date.

Daily elevation of water-surface (B. C. datum) of MOHAWK RIVER AT WATERFORD, for the year ended June 30, 1917. John W. Shook, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	17.2	15.7	16.45	16.85	16.82	19.25	17.4	17.5	19.6	20.15	19.8	19.35
2.....	16.6	15.7	16.35	16.65	17.48	19.2	17.38	17.58	18.75	22.25	20.0	20.85
3.....	16.7	15.6	16.5	16.45	17.08	19.02	17.4	17.6	18.1	23.4	20.75	18.35
4.....	18.4	15.6	16.4	16.3	17.6	19.15	17.85	17.55	17.9	23.7	20.8	18.25
5.....	17.9	15.5	16.25	16.25	17.98	19.25	17.92	17.42	17.75	23.35	22.15	16.48
6.....	17.65	15.2	16.25	16.4	18.7	19.18	17.98	17.52	17.62	23.15	22.1	18.45
7.....	16.95	13.9	16.3	16.65	18.42	19.1	18.12	17.48	17.62	22.85	21.95	18.25
8.....	16.7	14.3	16.2	16.3	18.28	18.98	18.2	17.5	17.85	22.3	21.8	18.05
9.....	16.6	14.6	16.2	16.4	17.8	18.98	18.32	17.63	18.4	21.9	21.4	18.95
10.....	16.75	14.95	16.15	16.4	17.72	18.8	18.28	17.65	18.8	21.3	20.65	19.6
11.....	16.5	15.15	16.45	16.45	17.48	18.82	18.32	17.5	17.5	20.9	20.5	21.05
12.....	16.5	15.3	16.15	16.85	17.18	18.88	18.38	17.52	17.92	20.7	20.5	23.7
13.....	16.35	15.1	16.25	16.4	17.08	18.75	18.55	17.65	17.82	20.45	19.9	24.15
14.....	16.25	15.15	16.3	16.2	17.2	18.58	18.66	17.78	17.92	20.2	20.15	23.65
15.....	16.95	15.7	16.45	16.25	17.25	18.38	18.7	17.5	18.1	18.75	19.75	22.0
16.....	17.35	16.25	17.0	16.45	17.35	18.28	18.5	17.4	18.42	18.65	19.65	19.9
17.....	17.25	16.05	17.15	16.48	17.35	17.82	18.5	17.42	18.7	18.65	19.85	20.05
18.....	16.8	15.9	17.0	16.65	17.45	17.5	18.75	17.45	18.75	18.65	20.3	19.85
19.....	16.75	15.8	16.75	16.4	17.35	17.6	17.95	17.35	18.78	19.25	20.6	19.3
20.....	16.4	15.65	16.65	16.3	17.4	17.62	17.55	17.35	18.82	20.4	20.65	18.8
21.....	16.05	15.9	16.55	16.35	17.62	17.48	17.42	17.48	18.72	22.65	20.7	18.6
22.....	15.9	16.0	16.75	17.55	17.58	17.55	17.4	17.6	18.78	21.7	18.65	18.85
23.....	15.7	16.0	16.25	17.45	17.65	17.7	17.48	17.68	19.15	21.65	20.7	18.65
24.....	15.7	16.0	17.15	17.45	17.75	17.62	17.5	17.58	20.54	21.15	20.5	18.15
25.....	15.6	16.1	16.45	17.35	17.98	17.8	17.62	17.7	22.28	20.75	20.6	18.25
26.....	15.8	16.2	17.3	17.35	18.7	17.9	17.6	19.8	22.1	20.4	20.7	16.45
27.....	15.8	16.0	17.25	17.0	18.65	17.9	17.68	19.92	23.35	19.8	19.35	18.7
28.....	15.85	16.3	16.65	16.9	18.7	17.88	17.38	20.02	24.65	19.75	18.35	19.05
29.....	15.7	16.1	16.65	16.85	19.02	17.82	17.35	.....	22.75	20.0	18.5	18.8
30.....	15.6	16.6	16.65	16.75	19.22	17.58	17.42	.....	22.0	19.85	19.8	19.15
31.....	15.7	16.65	.....	16.78	.....	17.5	17.5	.....	19.55	.....	19.55	.....

NOTE.—Elevation for June 12, 1916, should read 16.9 instead of 18.9 as published in Report of State Engineer and Surveyor for 1916, Vol. II, page 354.

NINE-MILE CREEK

DESCRIPTION

Nine-Mile creek drains a large portion of the territory on the north side of the Mohawk between Utica and Rome, emptying into the latter stream near Oriskany.

Water for the supply of the Rome summit level of the Barge canal will be diverted from West Canada creek above the Morgan dam at Trenton Falls through the Nine-Mile feeder to this stream, thence to the canal, which it enters three miles east of the main spillway for the Mohawk river and the east summit level guard-gate. Nine-Mile creek leaves the canal opposite its entrance over a concrete spillway with rounded crest 700 feet long at elevation 420.0, the canal pool. At the west end of the spillway there is a Taintor gate 24 feet long with sill at elevation 408.0.

NINE-MILE CREEK NEAR STITTVILLE

Location.— At a highway bridge over Nine-Mile creek, known as Powell's bridge, about $1\frac{3}{4}$ miles below the village of Stittville and about 3 miles from the village of Marcy.

Drainage area.— 59 square miles.

Records available.— Water-surface elevations, November 4, 1905, to June 30, 1917; discharge, January 1, 1907, to June 30, 1917. A gaging station was maintained at this point by the United States Deep Waterways Commission during its survey in 1898.

Gage.— A standard chain gage attached to the downstream side of the bridge is read to tenths twice daily.

Discharge computations.— New rating curve used, beginning October 1, 1915.

Control.— Rock. The channel is of uniform section and straight for several hundred feet above and below bridge.

Extremes of discharge.— Current year: Maximum stage recorded, June 11.* Minimum recorded discharge, on several days during August, elevation 483.7; discharge, 4 second-feet.

1907-1917: Maximum recorded discharge, October 8, 1907, at 7 A. M., elevation 489.4; estimated discharge, 6,000 second-

* Owing to failure of bridge abutment on June 3, the bridge was on temporary supports at this time and the elevation of water-surface is not available for publication.

feet. Minimum recorded discharge, August 1, 17, 18 and 19, 1916, elevation 483.7; discharge, 4 second-feet.

Winter flow.—Discharge relation seriously affected by ice. Discharge during ice period, January to March, inclusive, omitted.

Discharge measurements of NINE-MILE CREEK AT STITTVILLE, during the year ended June 30, 1917

DATE	Made by	Elevation of water-surface	Discharge
July 26.....	M. W. Grimes and J. Labishiner.....	Feet 483.96	Sec.-ft. 17.2
Aug. 30.....	M. W. Grimes and J. Labishiner.....	483.91	10.8
April 4.....	M. W. Grimes and C. J. Grace.....	484.85	222
June 28.....	J. Labishiner and C. J. Grace.....	484.46	80.8

Daily elevation of water-surface (B. C. datum) of NINE-MILE CREEK NEAR STITTVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	484.12	483.72	483.87	483.92	483.92	a	484.8	484.9	485.0	485.15	485.05	484.85
2.....	484.17	483.82	483.92	483.92	483.97	a	484.8	484.8	484.9	485.15	485.1	484.80
3.....	484.07	483.92	483.87	483.92	483.97	484.97	484.8	484.8	484.95	485.1	485.0	.....
4.....	483.97	483.82	483.82	483.82	484.02	485.02	484.8	484.8	485.0	484.95	485.0	.....
5.....	483.92	483.82	483.82	483.87	484.07	485.07	484.8	484.8	484.95	483.95	485.1	.....
6.....	483.97	483.87	483.87	483.92	484.82	485.82	484.8	484.8	485.05	483.9	485.05	.....
7.....	484.07	483.92	483.87	483.92	484.87	485.02	484.8	484.8	485.1	483.9	484.85	.....
8.....	484.02	483.92	483.82	483.92	484.97	484.92	484.8	484.8	483.05	484.75	483.9	.....
9.....	483.97	483.87	483.82	484.07	485.02	484.82	484.9	484.8	483.05	484.7	483.85	.....
10.....	483.92	483.87	483.87	484.82	485.07	484.97	484.85	484.8	485.15	483.85	483.9	.....
11.....	483.97	483.97	483.92	484.87	485.07	485.02	484.8	484.8	485.1	483.9	483.95	.....
12.....	483.97	483.92	483.92	484.97	484.87	485.07	484.8	483.0	485.15	483.95	484.0	.....
13.....	483.92	483.82	483.87	483.97	484.87	484.87	484.85	483.9	485.15	483.85	483.95	.....
14.....	483.92	483.82	484.02	485.07	484.87	483.87	484.8	483.9	485.05	483.95	483.9	.....
15.....	484.07	483.82	484.97	484.92	484.92	483.82	484.8	483.9	485.05	484.05	483.95	.....
16.....	483.97	483.82	485.07	484.87	484.97	483.92	484.8	483.9	485.1	484.1	484.05	.....
17.....	483.92	483.72	484.87	484.92	484.97	483.92	484.8	483.9	485.05	484.15	484.0	.....
18.....	483.92	483.72	484.42	484.97	485.02	483.92	484.8	483.9	485.05	484.85	484.05	.....
19.....	483.92	483.77	484.12	484.97	484.92	483.82	484.8	483.9	485.0	485.05	484.05	.....
20.....	483.87	483.82	484.77	485.07	484.92	483.87	484.8	483.9	485.15	484.95	484.05	.....
21.....	483.92	483.82	484.87	485.02	484.82	483.92	484.8	483.9	485.05	484.9	484.05	.....
22.....	483.87	483.82	484.97	485.02	483.97	483.92	484.8	483.9	485.0	484.8	484.05	.....
23.....	483.92	483.82	485.47	484.92	483.97	483.92	484.8	483.9	485.07	483.85	484.0	.....
24.....	483.97	483.82	484.87	484.87	483.92	483.92	484.8	483.9	487.05	483.8	484.05	.....
25.....	483.92	483.82	484.72	484.97	484.87	484.82	484.8	483.95	485.05	483.9	484.05	.....
26.....	483.97	483.87	484.12	484.97	484.92	484.82	484.8	484.0	487.15	484.85	484.1	.....
27.....	483.92	483.82	483.97	485.02	484.92	484.82	484.8	485.05	486.15	484.85	484.1	.....
28.....	483.92	483.82	483.92	485.07	484.97	484.82	484.8	485.1	486.1	485.0	484.15	.....
29.....	483.87	483.82	483.92	485.07	484.97	484.82	484.8	.....	485.95	485.05	484.1	.....
30.....	483.92	483.82	483.87	485.02	484.92	484.82	484.8	.....	485.15	485.15	484.75	.....
31.....	483.92	483.82	.....	484.97	.....	484.82	484.85	.....	485.25	.....	484.9	.....

a No record.

NOTE.—Abutment of bridge failed on June 3. Elevations from June 3 to June 30 not available for publication.

Daily discharge, in second-feet, of NINE-MILE CREEK NEAR STITTVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	47	4	13	18	18	*	.....	.....	.....	465	408	304
2.....	57	9	18	18	24	*	.....	.....	.....	465	436	279
3.....	89	18	13	18	24	365	.....	.....	.....	426	381	†
4.....	24	9	9	9	31	392	.....	.....	.....	355	381	.....
5.....	18	9	9	13	39	1,060	.....	.....	.....	21	436	.....
6.....	24	13	13	18	289	1,010	.....	.....	.....	15	408	.....
7.....	39	18	13	18	314	392	.....	.....	.....	15	304	.....
8.....	31	18	9	18	365	340	.....	.....	.....	255	15	.....
9.....	24	13	9	39	392	289	.....	.....	.....	232	11	.....
10.....	18	13	13	289	419	365	.....	.....	.....	11	15	.....
11.....	24	24	18	314	419	392	.....	.....	.....	15	21	.....
12.....	24	18	18	365	314	419	.....	.....	.....	21	28	.....
13.....	18	9	24	419	365	314	.....	.....	.....	11	21	.....
14.....	18	9	31	419	314	13	.....	.....	.....	21	15	.....
15.....	39	9	365	340	340	9	.....	.....	.....	35	21	.....
16.....	24	9	419	314	365	18	.....	.....	.....	44	35	.....
17.....	18	4	314	340	365	18	.....	.....	.....	53	28	.....
18.....	18	4	121	365	392	18	.....	.....	.....	304	35	.....
19.....	18	6	47	365	340	9	.....	.....	.....	408	35	.....
20.....	13	9	265	419	340	13	.....	.....	.....	355	35	.....
21.....	18	9	314	392	289	18	.....	.....	.....	330	35	.....
22.....	13	9	365	392	24	18	.....	.....	.....	279	35	.....
23.....	18	9	676	340	24	18	.....	.....	.....	11	28	.....
24.....	24	9	314	314	18	18	.....	.....	.....	8	35	.....
25.....	18	9	241	365	314	289	.....	.....	.....	15	35	.....
26.....	24	13	47	365	340	289	.....	.....	.....	304	44	.....
27.....	18	18	24	392	340	289	.....	.....	.....	304	44	.....
28.....	18	9	18	419	365	289	.....	.....	.....	881	53	.....
29.....	13	9	18	419	365	289	.....	.....	.....	408	44	.....
30.....	18	9	13	392	340	289	.....	.....	.....	465	255	.....
31.....	18	9	.....	365	.....	289	.....	.....	.....	.....	380	.....
Mean...	23.7	10.9	126	267	263	266	.....	.....	.....	201	129	.....

* Mean discharge. † Abutment of bridge failed June 3. Discharge, June 3 to June 30, not available for publication.

NOTE.—Discharge, January to March, inclusive, probably affected by ice; not published.

Monthly discharge of NINE-MILE CREEK NEAR STITTVILLE, for the year ended June 30, 1917

[Drainage area, 59 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	57	13	23.7	0.402	0.46
August.....	24	4	10.9	0.185	0.21
September.....	676	9	126	2.136	2.38
October.....	419	9	267	4.525	5.22
November.....	419	18	263	4.458	4.97
December.....	1,060	9	286	4.508	5.20
January.....	.....	.....	.....	.....	.....
February.....	.....	.....	.....	.....	.....
March.....	.....	.....	.....	.....	.....
April.....	465	8	201	3.41	3.80
May.....	436	11	129	2.19	2.52
June.....	.....	.....	.....	.....	.....

NOTE.—Discharge, January to March, inclusive, probably affected by ice; not published.

WEST CANADA CREEK

DESCRIPTION OF BASIN

West Canada creek rises in West Canada lake, in southwest-central Hamilton county, and flows southwestward, then southeastward into the Mohawk at Herkimer, N. Y. The drainage area, approximately 584 square miles, is shown on the Utica, Little Falls, Remsen, Wilmurt, Old Forge and West Canada Lakes sheets, United States Geological Survey topographic maps.

There are about fifty small lakes and a few undrained ponds in the watershed of the stream. Most of these are situated near the headwater, the largest single water-surface, exclusive of the Hinckley reservoir, being Honnedaga lake, 1.4 square miles in extent. There is also a small amount of controllable storage in reservoirs formed by three dams. Swamps and marshes are numerous in the region of the headwaters, usually adjoining lakes and tributaries and having an extent of one-half square mile or less each. At Trenton Falls there is an important plant of the Utica Gas & Electric Co.

Much of the region above the Hinckley reservoir is timber-covered. There are extensive sand areas in the central and upper drainage basins. The soil of the upper watershed is underlaid by granitic gneiss usually at or near the surface, excepting in alluvial valleys. From a point just above Twin Rock bridge (now submerged by the Hinckley reservoir) and extending downstream beyond Trenton Falls the underlying geological formation is Trenton limestone.

Compacted snow accumulates in the woodlands in winter, often to a depth of three or four feet, and representing an inch of water for each five or six inches of snow. This melts slowly, feeding the stream in March and April, which months may show a run-off greatly exceeding the precipitation.

At Hinckley there has been constructed and placed in operation (January, 1915) by the State of New York a storage reservoir of 3,445,000,000 cubic feet capacity for the supply of the Rome summit level of the Barge canal. The stored water will be passed

down West Canada creek and diverted by a new dam on the site of the old Morgan dam at Trenton Falls, through a feeder canal and Nine-Mile creek to the Barge canal.

For table of drainage areas of West Canada creek, see page 333.

HINCKLEY RESERVOIR

This station is on West Canada creek at the dam of the Hinckley reservoir, a part of the water-supply system for the Barge canal. The dam, about 1,600 feet above the highway bridge at Hinckley, consists of earth dykes with concrete core and a concrete spillway with an ogee crest 400 feet long at elevation 1,225.0. At the north end of the spillway are four 60-inch discharge pipes with center of outlets at elevation 1,169.5. At the south end are two 42-inch pipes with center of inlets at elevation 1,164.25 for the use of the Consolidated Water Co., which diverts water at this point to Utica. The reservoir has a capacity of 3,445,000,000 cubic feet below, and a water-surface area of about 4.46 square miles at crest elevation. While small amounts of water were impounded during construction as early as April, 1914, the reservoir was first used for regulative purposes in January, 1915. A concrete staff gage on the south face of the north gate-house indicates reservoir surface just above spillway.

Daily elevation of water-surface of HINCKLEY RESERVOIR AT HINCKLEY DAM, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.	1,225.6	1,225.4	1,222.1	1,222.0	1,225.3	1,227.1	1,219.1	1,189.9	1,178.0	1,206.5	1,225.9	1,225.8
2.	1,225.7	1,225.3	1,222.0	1,222.1	1,225.4	1,226.6	1,218.9	1,188.9	1,189.0	1,206.7	1,226.3	1,225.7
3.	1,225.9	1,225.2	1,221.9	1,222.1	1,225.3	1,226.2	1,217.6	1,188.1	1,179.9	1,212.7	1,226.4	1,225.6
4.	1,226.1	1,225.2	1,221.8	1,222.1	1,225.4	1,225.9	1,216.5	1,187.4	1,180.0	1,218.5	1,226.0	1,225.6
5.	1,225.9	1,225.2	1,221.7	1,222.0	1,225.4	a	1,215.3	1,186.5	1,180.0	1,221.4	1,225.6	1,225.5
6.	1,225.8	1,225.1	1,221.6	1,221.9	1,225.4	1,226.4	1,214.4	1,185.6	1,181.1	1,223.2	1,225.5	1,225.4
7.	1,225.7	1,225.1	1,221.4	1,221.8	1,225.4	1,226.3	1,213.7	1,184.0	1,179.0	1,224.0	1,225.5	1,225.3
8.	1,225.7	1,225.0	1,221.3	1,221.7	1,225.4	1,226.0	1,212.8	1,182.8	1,179.0	1,224.5	1,225.4	1,225.7
9.	1,225.6	1,225.0	1,221.2	1,221.6	1,225.3	1,225.85	1,211.8	1,181.8	1,179.2	1,224.6	1,225.3	1,226.4
10.	1,225.55	1,224.9	1,221.1	1,221.6	1,225.4	1,226.0	1,210.7	1,180.9	1,178.0	1,224.6	1,225.4	1,226.3
11.	1,225.5	1,224.8	1,220.9	1,221.3	1,225.5	1,225.9	1,209.7	1,179.9	1,178.0	1,224.5	1,225.5	1,226.7
12.	1,225.5	1,224.75	1,220.7	1,221.2	1,225.5	1,225.7	1,208.7	1,179.0	1,178.0	1,224.5	1,225.5	1,226.4
13.	1,225.5	1,224.65	1,220.5	1,221.0	1,225.4	1,225.5	1,207.7	1,178.6	1,178.7	1,224.5	1,225.4	1,227.5
14.	1,225.6	1,224.55	1,220.35	1,221.5	1,225.4	1,225.4	1,206.8	1,177.8	1,180.0	1,224.3	1,225.4	1,226.5
15.	1,225.7	1,224.4	1,220.35	1,221.8	1,225.4	1,225.25	1,206.4	1,176.5	1,180.8	1,223.9	1,225.3	1,226.3
16.	1,225.7	1,224.3	1,220.9	1,222.0	1,225.4	1,225.15	1,205.6	1,175.5	1,181.0	1,223.5	1,225.2	1,225.9
17.	1,225.7	1,224.2	1,221.0	1,222.0	1,225.4	1,225.0	1,204.7	1,174.6	1,181.0	1,223.0	1,224.8	1,225.7
18.	1,225.7	1,224.0	1,221.1	1,222.1	1,225.3	1,224.95	1,204.0	1,175.0	1,181.0	1,222.8	1,224.2	1,225.6
19.	1,225.7	1,223.9	1,221.1	1,222.1	1,225.3	1,224.8	1,203.2	1,174.9	1,181.0	1,222.0	1,223.9	1,225.5
20.	1,223.6	1,223.8	1,221.0	1,222.2	1,225.3	1,224.65	1,202.7	1,174.5	1,181.3	1,224.7	1,223.3	1,225.3
21.	1,225.6	1,223.6	1,220.9	1,222.9	1,225.3	1,224.35	1,201.8	1,174.3	1,181.4	1,227.4	1,222.9	1,225.4
22.	1,225.6	1,223.4	1,220.8	1,223.9	1,225.3	1,224.0	1,200.8	1,174.0	1,181.4	1,227.7	1,222.8	1,225.4
23.	1,225.6	1,223.35	1,220.9	1,224.9	1,225.2	1,223.65	1,199.7	1,174.0	1,181.3	1,227.5	1,222.9	1,225.3
24.	1,225.7	1,223.15	1,221.4	1,224.9	1,225.3	1,223.3	1,198.6	1,174.0	1,182.3	1,227.0	1,223.5	1,225.3
25.	1,225.6	1,223.0	1,221.6	1,225.1	1,227.2	1,222.9	1,197.9	1,174.0	1,185.0	1,226.5	1,224.5	1,225.2
26.	1,225.55	1,222.8	1,221.7	1,225.3	1,226.5	1,222.55	1,196.9	1,174.0	1,188.3	1,226.2	1,225.4	1,225.2
27.	1,225.6	1,222.7	1,221.6	1,225.2	1,226.1	1,222.2	1,195.9	1,175.0	1,192.0	1,226.2	1,225.7	1,225.2
28.	1,225.7	1,222.6	1,221.55	1,225.3	1,225.8	1,221.7	1,193.7	1,176.1	1,197.0	1,225.9	1,225.6	1,225.1
29.	1,225.6	1,222.5	1,221.6	1,225.3	1,225.75	1,221.3	1,191.7	.....	1,201.3	1,226.8	1,225.6	1,224.9
30.	1,225.55	1,222.4	1,221.8	1,225.3	1,226.8	a	1,191.0	.....	1,204.0	1,225.8	1,226.0	1,225.9
31.	1,225.5	1,222.3	.....	1,225.3	.....	a	1,190.0	.....	1,205.5	.....	1,225.8	.....

a No record.

WEST CANADA CREEK AT POWER DAM, TRENTON FALLS

Location.—At the power dam and plant of the Utica Gas and Electric Company at Trenton Falls.

Drainage area.—376 square miles (from U. S. G. S. topographic maps).

Records available.—November 1, 1905, to June 30, 1917.

Gage.—Vertical chain gage on upstream face of dam, read twice daily—at 8 A. M. and 5 P. M. Owing to irregular fluctuation, water-surface elevations are not published.

Discharge computations.—Discharge over the two spillways computed by weir formula, using coefficients derived from United States Geological Survey experiments and the assumption that the water-surface varies uniformly between the two daily readings as a basis for estimating duration and head of actual overflow. Flow through wheels estimated from average kilowatts developed

per machine-hour during the twenty-four hours for which the total kilowatts developed. The number of machines operated and length of runs are furnished by the company. The relation is based on measurements made by the company over weirs in the tail-race.

Control.—Masonry crest of concrete dam 97.9 feet long at elevation 1,019.12* and by-pass cut through rock with crest 163.4 feet long, two feet below that of dam but provided with flash-boards to dam crest elevation for use during low-water periods, together with wheels in power-plant operating under a head of approximately 270 feet.

Extremes of discharge.—Current year: Maximum recorded discharge, June 12, at 8 A. M., 7,540 second-feet. Minimum recorded discharge, September 3, 0 second-feet, when pond was drawn down and wheels stopped.

1905–1917: Maximum recorded discharge, March 28, 1913, 25,700 second-feet. Minimum recorded discharge, September 20 and 27, 1908, 0 second-feet, when the pond was low and the wheels shut down.

Diversión.—The Consolidated Water Company of Utica diverts water at Hinckley for the supply of the city of Utica.

Regulation.—By new Barge canal storage reservoir at Hinckley, capacity 3,445,000,000 cubic feet, about 4 miles upstream. Small amounts of water were impounded during construction as early as April, 1914, but this reservoir was first used for regulative purposes in January, 1915. There are several small reservoirs farther up the stream.

Accuracy.—The kilowatts used in estimating the flow through the wheels is the total developed during 24 hours. The pondage is very limited and the surface fluctuates often as much as 10 feet during 24 hours in the low-water season. In connection with the calculated discharge at Trenton Falls it may be stated that there are a variety of conditions which tend to limit the accuracy obtainable.

Coöperation.—Maintained in coöperation with the United States Weather Bureau.

* Incorrectly printed as 1,003.12 in Report of State Engineer and Surveyor for 1915, Vol. II, page 319.

Daily discharge, in second-feet, of WEST CANADA CREEK AT POWER DAM, TRENTON FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	401	315	329	533	459	4,448	804	701	455	1,010	1,540	1,310
2.....	394	240	320	330	546	2,963	1,250	704	486	886	1,910	1,040
3.....	528	240	50	324	537	2,046	1,370	742	474	946	2,100	964
4.....	1,018	242	260	324	571	1,411	1,370	762	438	941	1,580	951
5.....	816	284	339	323	813	1,429	1,370	696	399	981	1,210	824
6.....	504	206	321	323	522	2,281	1,370	609	425	1,030	1,590	749
7.....	455	299	322	324	538	2,272	1,570	609	400	1,110	1,020	645
8.....	490	277	325	172	480	1,665	1,350	575	403	1,250	810	1,210
9.....	854	301	321	304	456	1,367	1,370	536	377	1,170	759	2,290
10.....	340	295	325	328	487	1,557	1,320	536	370	1,240	901	2,120
11.....	311	331	351	329	602	1,530	1,260	734	433	1,200	1,130	3,700
12.....	291	325	324	329	671	1,372	1,200	598	341	1,070	1,020	8,520
13.....	333	441	316	347	520	1,251	1,180	659	375	1,180	928	5,190
14.....	493	375	309	346	572	561	1,370	462	371	1,120	940	2,710
15.....	446	590	329	473	569	700	1,120	342	406	1,080	1,140	1,680
16.....	457	333	400	338	574	611	1,130	327	390	1,110	1,180	1,410
17.....	366	331	446	333	487	638	1,130	331	406	1,120	1,180	1,280
18.....	379	332	356	333	511	526	1,130	382	422	1,120	1,180	955
19.....	381	370	323	331	425	538	1,130	354	363	1,120	1,140	735
20.....	317	418	313	332	413	696	1,130	291	353	1,140	1,250	572
21.....	306	388	326	346	403	908	1,180	267	347	5,120	806	531
22.....	324	321	322	454	404	865	539	265	355	5,420	701	487
23.....	635	322	328	324	404	865	1,030	270	370	5,100	748	467
24.....	488	322	421	357	2,603	924	1,030	271	430	3,540	312	411
25.....	536	335	359	357	4,376	932	1,030	236	603	2,400	318	425
26.....	429	521	328	428	2,218	805	993	283	562	2,060	307	423
27.....	537	459	327	458	1,611	775	902	264	574	1,590	1,349	407
28.....	622	359	315	486	1,202	777	937	316	611	1,020	843	378
29.....	541	333	346	570	1,131	775	843	.....	695	1,060	935	477
30.....	490	329	582	412	4,375	773	863	.....	769	1,290	1,550	1,480
31.....	318	326	.....	403	.....	649	941	.....	847	.....	1,290	.....
Mean....	475	340	334	370	983	1,230	1,136	469	460	1,693	1,086	1,486

Monthly discharge of WEST CANADA CREEK AT POWER DAM, TRENTON FALLS, for the year ended June 30, 1917

(Drainage area, 376 square miles)

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	1,018	291	475	1.26	1.45
August.....	590	206	340	0.904	1.04
September.....	582	50	334	0.889	0.99
October.....	570	172	370	0.953	1.13
November.....	4,376	403	983	2.61	2.91
December.....	4,448	526	1,230	3.27	3.77
January.....	1,570	539	1,136	3.021	3.48
February.....	762	236	469	1.247	1.30
March.....	847	341	460	1.223	1.41
April.....	5,420	886	1,693	4.503	5.02
May.....	2,100	307	1,086	2.888	3.33
June.....	8,520	378	1,455	3.950	4.41
The year.....	8,520	50	838	2.229	30.24

WEST CANADA CREEK AT MORGAN DAM, TRENTON FALLS

This station was established February 8, 1904, by this Department and is maintained in coöperation with the United States Weather Bureau. A staff gage is located on the right bank of the stream about 100 feet above the site of the old Morgan dam. A new dam has been constructed by the State 60 feet above the old dam to divert water through the Nine-Mile creek feeder for the supply of the Rome summit level of the Barge canal. The crest, at elevation 753.25, has an ogee type section and a length of about 147 feet. There is a Taintor gate with a clear span of 30 feet, sill at elevation 744.0 and top when closed at elevation 756.5. The gage is read twice daily — at 7 A. M. and 6 P. M.— to tenths.

Daily elevation of water-surface (B. C. datum) of WEST CANADA CREEK ABOVE MORGAN DAM, TRENTON FALLS, for the year ended June 30, 1917. C. W. Young, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	749.65	749.05	748.95	748.95	748.95	754.6	750.55	750.35	750.35	750.75	753.0	751.1
2.....	749.65	749.05	748.95	748.95	748.95	754.1	751.2	750.35	750.35	750.8	753.05	750.95
3.....	750.05	749.0	749.9	748.95	748.95	752.85	751.45	750.35	750.35	750.85	752.95	750.95
4.....	750.65	749.05	748.8	748.95	748.95	751.25	751.55	750.35	750.35	750.95	752.6	750.9
5.....	750.45	749.1	748.95	748.95	748.95	751.25	751.55	750.35	750.35	750.95	752.5	750.85
6.....	750.3	749.05	748.95	748.95	748.95	753.05	751.55	750.35	750.25	750.95	752.3	750.85
7.....	750.2	749.05	748.95	748.95	748.95	752.7	751.55	750.35	750.25	750.95	752.05	750.85
8.....	750.15	749.05	748.95	748.95	748.95	751.85	751.45	750.35	750.25	751.05	751.65	751.55
9.....	750.15	748.95	748.95	748.95	748.95	750.95	751.45	750.35	750.25	751.05	751.45	753.65
10.....	750.1	748.95	748.95	748.95	748.95	751.45	751.45	750.35	750.25	751.05	751.45	753.75
11.....	749.65	748.95	748.95	748.95	748.95	751.35	751.25	750.35	750.25	751.05	751.45	755.0
12.....	749.55	748.95	748.95	748.95	749.15	751.0	751.25	750.25	750.25	751.05	751.55	756.5
13.....	749.25	748.95	748.95	748.95	749.25	750.8	751.25	750.25	750.25	751.05	751.65	755.6
14.....	749.25	748.95	748.95	748.95	749.55	750.75	751.25	750.15	750.25	751.05	751.55	754.5
15.....	749.25	748.95	748.95	748.95	749.55	750.6	751.25	750.15	750.25	751.05	751.85	753.75
16.....	749.25	748.95	748.95	748.95	749.55	750.35	751.1	750.05	750.25	751.05	752.15	752.6
17.....	749.25	748.95	749.15	748.95	749.55	750.0	750.95	750.05	750.25	751.05	752.15	752.1
18.....	749.25	748.95	749.05	748.95	749.31	749.95	750.85	750.05	750.25	751.05	752.15	751.4
19.....	749.25	748.95	748.95	748.95	749.25	749.95	750.65	750.05	750.25	751.05	752.15	750.75
20.....	749.2	748.95	748.95	748.95	749.15	750.4	750.65	749.8	750.25	750.9	752.15	750.55
21.....	749.1	748.95	748.95	748.95	749.25	750.75	750.65	749.65	750.25	755.8	751.2	750.25
22.....	749.25	748.95	748.95	748.95	749.25	750.75	750.55	749.65	750.25	755.95	750.85	750.25
23.....	749.25	748.95	748.95	748.95	749.25	750.75	750.45	749.65	750.25	755.9	749.45	750.25
24.....	749.25	748.95	748.95	748.95	754.61	750.75	750.45	749.65	750.25	755.65	750.65	750.25
25.....	749.25	748.95	748.95	748.95	754.95	750.75	750.45	749.65	750.25	754.5	750.65	750.25
26.....	749.25	748.95	748.95	748.95	753.95	750.75	750.45	749.65	750.25	753.75	750.85	750.25
27.....	749.25	748.95	748.95	748.95	751.9	750.75	750.35	749.65	750.25	752.75	751.1	750.25
28.....	749.25	748.95	748.95	748.95	751.2	750.65	750.35	749.65	750.25	752.5	751.05	750.25
29.....	749.25	748.95	748.95	748.95	751.0	750.65	750.35	.....	750.35	752.45	752.45	750.25
30.....	749.25	748.95	748.95	748.95	753.25	750.65	750.35	.....	750.55	752.8	752.1	751.75
31.....	749.15	748.95	.....	748.95	.....	750.65	750.35	.....	750.65	.....	751.85	.....

WEST CANADA CREEK AT KAST BRIDGE

Location.—At the highway bridge over West Canada creek known as Kast bridge, opposite the station of that name on the Herkimer and Remsen branch of the N. Y. C. R. R., about $3\frac{1}{2}$ miles above the village of Herkimer.

Drainage area.—575 square miles.

Records available.—Water-surface elevations, May 15, 1904, to June 30, 1917; discharge, January 1, 1907, to June 30, 1917.

Gage.—The gage is of the weight-and-reel type and is secured to the upstream side of the bridge. It is read twice daily—at 8 A. M. and 4 P. M.—to hundredths.

Control.—Gravel and cobble rift about 1,500 feet below the gage. The bed of the stream is permanent with a fairly straight and uniform channel from the control to quite a distance above the gage.

Extremes of discharge.—Current year: Maximum stage recorded, February 11, at 4 P. M., elevation 453.09, due to backwater caused by anchor ice and snow; discharge, not available. Minimum recorded discharge, September 4, at 4 P. M., elevation 441.99; discharge, 156 second-feet.

1907–1917: Maximum recorded discharge, March 26, 1913, at 8 A. M., elevation 451.06; estimated discharge, 23,300 second-feet. (See foot-note.) Minimum recorded discharge, September 12, 1913, at 8 A. M., elevation 441.64; discharge, 80 second-feet.

Winter flow.—Discharge relation affected by ice conditions. Discharge during January to March, inclusive, omitted.

Diversion.—The Consolidated Water Company of Utica diverts water at Hinckley for the supply of the city of Utica.

Regulation.—Seasonal by Barge canal storage reservoir at Hinckley, and daily by power-plant pondage at Trenton Falls.

NOTE.—A maximum elevation of 453.00 was recorded on February 11, 1917, at 4 P. M., due to back water caused by stream filling with anchor ice and snow, but it is not believed that the discharge was a maximum.

Discharge measurements of WEST CANADA CREEK AT KAST BRIDGE, for a period ended
June 30, 1917

DATE	Made by.	Elevation of water-surface	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
1915			
Dec. 10.....	G. E. Gibson and M. W. Grimes.....	442.89	572
1916			
July 25.....	M. W. Grimes and J. Labishiner.....	443.06	715
July 25.....	M. W. Grimes and J. Labishiner.....	443.10	696

Daily elevation of water-surface (B. C. datum) of WEST CANADA CREEK AT KAST
BRIDGE, NEAR HERKIMER, for the year ended June 30, 1917. Lloyd Kast,
Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	442.86	442.71	442.70	442.02	443.28	446.21	443.76	443.69	448.84	445.81	445.12	444.50
2.....	442.78	442.57	442.77	442.82	443.17	445.66	444.32	443.42	448.88	446.36	445.73	444.30
3.....	444.07	442.56	442.90	442.77	443.25	444.82	444.39	443.22	448.00	445.60	445.62	444.10
4.....	443.78	442.56	442.14	442.75	443.24	444.42	444.37	443.32	448.46	444.82	445.35	444.12
5.....	443.64	442.58	442.71	442.72	443.98	444.99	444.40	445.73	448.56	444.56	445.05	443.93
6.....	443.41	442.50	442.76	442.73	442.48	445.10	444.57	447.36	448.68	444.61	445.02	443.86
7.....	443.13	442.58	442.68	442.74	443.28	445.09	444.44	449.30	448.52	444.64	444.84	443.84
8.....	442.92	442.60	442.72	442.62	443.20	444.60	444.28	448.21	447.92	444.32	444.47	444.70
9.....	442.97	442.68	442.73	442.43	443.12	444.65	444.20	448.87	447.84	444.27	444.36	445.45
10.....	442.71	442.58	442.64	442.69	443.48	444.60	444.28	452.26	447.82	444.19	444.34	445.24
11.....	442.75	442.68	442.71	442.69	443.32	444.38	444.12	453.06	447.64	444.20	444.64	447.88
12.....	442.04	442.78	442.70	442.66	443.23	444.25	444.09	452.72	446.72	444.35	444.59	447.82
13.....	442.66	442.81	442.68	442.88	443.20	443.80	444.00	451.88	445.30	444.24	444.42	446.90
14.....	442.90	442.78	442.57	443.50	443.49	443.72	444.32	450.18	444.58	444.10	444.34	446.86
15.....	443.04	442.74	443.57	442.93	443.28	443.50	444.24	449.08	444.36	444.12	444.22	445.12
16.....	442.86	442.74	443.37	442.84	443.28	443.47	444.30	448.62	444.08	444.17	444.62	445.12
17.....	442.85	442.67	442.70	442.86	443.18	443.18	444.00	448.11	444.04	444.11	444.58	444.64
18.....	442.82	442.75	442.77	442.86	443.20	448.12	444.12	447.92	443.86	444.18	444.52	444.23
19.....	442.76	442.70	442.77	442.82	443.14	443.27	444.04	447.69	443.51	444.30	444.57	443.98
20.....	442.56	442.68	442.72	443.01	443.15	443.22	443.99	447.58	443.25	444.76	444.60	444.28
21.....	442.66	442.69	442.69	444.07	443.04	443.72	443.99	447.16	443.57	445.61	444.54	444.06
22.....	442.62	442.67	442.72	443.14	442.99	443.82	443.88	446.94	443.43	447.10	444.00	443.84
23.....	443.20	442.68	443.56	442.99	442.99	443.86	443.90	447.66	443.60	446.98	444.06	443.66
24.....	442.96	442.69	442.98	442.86	445.46	443.86	443.87	447.56	446.04	446.41	443.46	443.85
25.....	443.11	442.70	442.86	442.88	446.20	443.75	443.91	447.64	445.80	445.86	443.59	443.76
26.....	443.12	442.72	442.70	443.02	445.48	443.66	443.83	447.62	446.17	445.50	443.46	443.61
27.....	443.24	442.80	442.80	443.03	444.72	443.78	443.73	450.66	446.17	445.52	444.25	443.76
28.....	443.20	442.80	442.75	443.04	444.39	443.81	443.68	449.62	445.46	444.98	444.18	443.52
29.....	443.12	442.80	442.99	442.96	444.64	443.72	443.76	.....	444.46	444.66	445.18	444.34
30.....	442.87	442.72	443.46	443.00	446.24	442.07	444.02	.....	444.34	444.84	444.94	444.64
31.....	442.78	442.72	.....	442.98	.....	443.66	443.84	.....	444.35	.....	444.64	.....

NOTE.—From February 5 to about March 15, channel completely filled with ice and snow. Elevations were taken to top of ice. High water due to obstruction of channel and not to high discharge.

GAGING OF STREAMS: MOHAWK RIVER BASIN 377

Daily discharge, in second-feet, of WEST CANADA CREEK AT KAST BRIDGE, NEAR
HERKIMER, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	518	461	456	606	871	6,480	1,860	1,200	.....	5,540	3,860	2,510
2.....	504	394	497	533	780	5,180	2,180	1,010	.....	6,860	5,350	2,140
3.....	1,800	390	591	497	847	3,140	2,310	826	.....	5,040	5,090	1,840
4.....	1,390	390	200	482	840	2,360	2,270	911	.....	3,140	4,470	1,870
5.....	1,240	399	461	465	1,670	3,540	2,320	.....	.....	2,620	3,680	1,600
6.....	1,000	404	489	470	1,080	3,810	2,640	.....	.....	2,710	3,610	1,500
7.....	780	399	446	475	871	3,780	2,400	.....	.....	2,770	3,180	1,480
8.....	606	409	465	418	811	2,690	2,100	.....	.....	2,180	2,460	2,880
9.....	591	446	470	328	752	2,790	1,980	.....	.....	2,080	2,250	4,780
10.....	461	399	428	451	1,080	2,690	2,100	.....	.....	1,970	2,220	4,160
11.....	482	446	461	451	911	2,290	1,870	.....	.....	1,980	2,780	11,200
12.....	428	504	456	437	833	2,050	1,830	.....	.....	2,230	2,680	11,000
13.....	437	526	446	577	811	1,420	1,780	.....	.....	2,040	2,360	8,300
14.....	591	504	394	1,100	1,095	1,320	2,180	.....	.....	1,920	2,220	5,660
15.....	694	475	1,100	614	871	1,100	2,040	.....	.....	1,870	2,010	3,860
16.....	562	475	891	548	871	990	2,140	.....	1,810	1,940	2,730	3,860
17.....	555	442	511	562	797	1,830	.....	.....	1,760	1,859	2,660	2,780
18.....	533	482	497	562	811	752	1,870	.....	1,600	1,950	2,550	2,100
19.....	489	456	497	533	767	862	1,760	.....	1,100	2,140	2,510	1,670
20.....	390	446	465	672	774	826	1,690	.....	847	2,990	2,690	2,100
21.....	437	451	451	1,800	694	1,320	1,690	.....	1,170	5,060	2,580	1,780
22.....	418	442	465	767	658	1,450	1,580	.....	1,020	8,860	1,700	1,400
23.....	811	446	1,150	658	658	1,500	1,560	.....	1,260	8,520	1,780	1,260
24.....	636	451	651	562	4,700	1,500	1,520	.....	6,080	6,980	1,050	1,530
25.....	745	456	562	577	6,460	1,350	1,570	.....	5,520	5,660	1,190	1,360
26.....	752	470	511	680	4,750	1,260	1,460	.....	6,390	4,800	1,050	1,210
27.....	840	518	518	665	2,920	1,390	1,330	.....	6,390	4,850	2,050	1,360
28.....	811	518	482	694	2,140	1,430	1,280	.....	4,550	3,520	1,950	1,100
29.....	752	518	658	636	2,770	1,320	1,390	.....	2,380	2,800	4,010	2,220
30.....	570	465	1,050	665	6,500	1,270	1,730	.....	2,220	3,160	3,420	2,780
31.....	504	465	.....	651	.....	1,280	1,480	.....	2,290	.....	2,780	.....
Mean...	687	453	557	617	1,679	2,062	1,845	.....	.....	3,668	2,739	3,112

NOTE.—Discharge relation slightly affected by ice, December 16 to February 4, inclusive, and seriously affected by ice, February 5 to March 15, inclusive.

Monthly discharge of WEST CANADA CREEK AT KAST BRIDGE, NEAR HERKIMER,
for the year ended June 30, 1917

[Drainage area, 575 square miles]

Month	DISCHARGE IN SECOND-FEET				Run-off Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,800	390	687	1.195	1.38
August.....	528	390	453	0.788	0.91
September.....	1,150	200	557	0.969	1.08
October.....	1,800	328	617	1.073	1.24
November.....	6,560	658	1,679	2.920	3.26
December.....	6,480	752	2,062	3.586	4.13
January.....	2,640	1,280	1,845	3.209	3.70
February.....	.....	.....	.....	.....	.....
March.....	.....	.....	.....	.....	.....
April.....	8,860	1,860	3,668	6.379	7.117
May.....	5,350	1,050	2,739	4.763	5.491
June.....	11,200	1,100	3,112	5.412	6.038

EAST CANADA CREEK

DESCRIPTION

East Canada creek rises in Hamilton county and flows southward between Herkimer and Fulton counties, joining the Mohawk at East Creek. In a general way its drainage basin is similar to that of West Canada creek, although its flow is less sustained and regular.

Spruce creek, the principal tributary of East Canada creek, enters 1 mile above Dolgeville and drains an area of 50 square miles. Water is diverted from this creek and from Beaver creek, one of the tributaries at Diamond Hill, and is carried to Little Falls through a cast-iron conduit 9 miles long.

For table of drainage areas of East Canada creek, see page 335.

EAST CANADA CREEK AT DOLGEVILLE

A gaging station on this stream was established for the U. S. Board of Engineers on Deep Waterways in 1898. It was maintained by the U. S. Geological Survey in coöperation with this Department from 1900 to June, 1907, inclusive, when it was taken over by this Department.

Location.—At the power-plant of the Herkimer County Light and Power Company at High falls about 1 mile below the village of Dolgeville and about 7 miles above the mouth of the stream.

Drainage area.—257 square miles.

Records available.—September 23, 1898, to June 30, 1917.

Gage.—Above dam, a reference point on the right-hand abutment; lower gage, a staff secured to the side wall of the tail-race below the power-plant. Readings twice daily—at 7 A. M. and 6 P. M.

Discharge computations.—Discharge over dam computed from curve based on United States Geological Survey experiments at Cornell University, with a full-sized model of the crest. Estimated flow through the turbines based on ratings by current-meter measurements made in the tail-race of the power-plant.

Control.—A masonry dam about 19 feet high with fixed flat crest 6 feet wide sloping downward upstream about 1 foot in 6, 190.25 feet long, upon which flash-boards are maintained during ordinary stages of the stream, together with turbines in power-plant.

Extremes of discharge.—Current year: Maximum discharge recorded, June 12, at 7 A. M., 5,210 second-feet. Minimum discharge recorded, September 25, 0 second-feet. Water below crest and no wheels running.

1898–1917: Maximum discharge recorded, March 26, 1913, at 9 P. M., approximately 14,500 second-feet. Minimum discharge recorded, August 21, 1910, 0 second-feet. No water was used for 19 hours while the pond was filling.

Winter flow.—Very slightly affected by ice, as the crest is kept clean during the winter months.

Diversion.—From Spruce and Beaver creeks at Diamond Hill for water-supply of Little Falls; from Cold brook for water-supply of Dolgeville. The run-off given below is that passing the station and is exclusive of the above diversions.

Daily discharge, in second-feet, of EAST CANADA CREEK AT DOLGEVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	238	97	78	*144	326	1,180	196	341	563	2,300	1,530	737
2.....	156	92	90	112	395	497	215	250	526	4,190	2,290	649
3.....	477	103	61	147	394	266	195	231	509	4,490	1,880	511
4.....	319	102	69	155	367	904	105	226	433	3,810	1,420	521
5.....	318	151	69	128	438	554	195	310	476	2,870	1,300	446
6.....	232	*111	69	144	407	1,430	392	276	472	2,430	1,510	380
7.....	245	94	57	86	262	1,240	400	274	431	2,140	1,300	392
8.....	211	123	55	87	319	853	361	274	404	1,480	1,300	1,040
9.....	200	123	107	123	300	873	331	274	381	806	1,110	1,240
10.....	211	110	107	103	397	895	347	221	332	529	1,030	971
11.....	229	110	107	99	382	534	247	230	189	797	864	2,020
12.....	247	115	87	103	253	427	213	221	509	1,080	625	3,870
13.....	213	117	69	170	272	411	232	213	566	970	566	2,020
14.....	229	69	69	567	421	372	252	217	572	663	546	1,330
15.....	175	97	91	249	306	237	468	198	528	704	531	1,070
16.....	*198	90	316	331	313	120	578	217	512	660	486	841
17.....	202	90	277	229	245	88	566	222	507	519	418	527
18.....	193	83	153	172	259	213	589	220	459	1,580	347	726
19.....	171	83	110	175	247	267	460	213	448	2,000	321	481
20.....	172	94	101	431	272	249	397	215	382	4,300	409	582
21.....	170	69	111	977	211	299	294	232	388	5,120	399	850
22.....	175	69	603	543	201	316	317	304	379	4,070	443	729
23.....	230	69	503	821	249	319	299	274	431	3,290	564	388
24.....	308	77	345	384	1,590	287	315	265	1,300	2,750	592	850
25.....	170	69	16	296	1,300	351	348	199	1,340	2,300	712	814
26.....	156	91	245	229	1,570	284	326	266	1,530	1,640	854	545
27.....	149	115	139	211	563	328	323	637	2,350	1,690	697	667
28.....	180	134	127	200	507	330	259	590	3,020	1,360	511	570
29.....	130	131	159	145	508	286	264	.....	2,040	1,230	1,050	1,060
30.....	66	127	182	211	1,150	247	327	.....	1,460	1,250	1,310	2,220
31.....	77	111	.....	172	.....	199	349	.....	1,210	.....	856	.....
Mean...	209	101	152	256	482	479	330	272	795	2,100	896	970

* Estimated; records incomplete.

**Monthly discharge of EAST CANADA CREEK AT DOLGEOVILLE, for the year ended
June 30, 1917**

(Drainage area, 257 square miles)

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	477	77	209	0.813	0.94
August.....	134	69	101	0.393	0.45
September.....	603	16	152	0.591	0.66
October.....	821	86	256	0.996	1.15
November.....	1,590	201	482	1.875	2.08
December.....	1,430	88	479	1.864	2.15
January.....	589	195	330	1.254	1.48
February.....	637	198	272	1.058	1.10
March.....	3,020	189	795	3.093	3.57
April.....	5,120	519	2,100	8.171	9.12
May.....	2,290	321	896	3.486	4.02
June.....	3,870	330	970	3.774	4.21
The year.....	5,120	16	586	2.280	30.94

SCHOHARIE CREEK

DESCRIPTION OF BASIN

The source of Schoharie creek is about two miles east of Tannersville, at an elevation of 1,940 feet. The source is within about four miles of the easterly escarpment of the Catskill plateau. The stream valley is broad and the slope moderate throughout the upper regions. A small area, which apparently was formerly tributary to Schoharie creek, has been cut off by erosion and has thus become tributary to Kaaterskill. Nearly the entire drainage basin is irregular and precipitous. It is extensively covered with second-growth forests.

The basin of Schoharie creek is largely overlaid by slaty rocks, into which water percolates only to a slight depth. The valley soil is largely thin plastic clay, formed by disintegration of the native rocks. Passing from the headwaters toward the mouth, Schoharie creek crosses successively the Devonian sedimentary rocks, chiefly of the Catskill, Oneonta, Ithaca and Hamilton formations. All of these may be considered fairly impervious and free from fissures. It then crosses belts of Silurian formations, including Helderberg, Salina, Niagara and Medina sandstone and limestone. These rocks are underlaid by impervious Hudson river shales, but are themselves permeable, yielding numerous springs at the lower partings.

It is the intention of the Board of Water Supply of the city of New York to build a dam on the Schoharie creek at Gilboa for an additional water-supply. A tunnel about 18 miles long, beginning at a point on the creek near the county line north of Prattsville, will carry the water to the Esopus creek in the vicinity of Allaben, whence it will follow the natural course of the Esopus creek until it empties into the Ashokan reservoir. The area diverted will be approximately 314 square miles.

The entire drainage basin of 930* square miles is shown on the topographic maps of the United States Geological Survey. For area at different points along the stream, see table on page 336.

SCHOHARIE CREEK AT PRATTSVILLE

Location.—On upstream side of highway bridge at Prattsville. Automatic gage is located on downstream side, left bank. Pipe gage on right bank below bridge has been discontinued.

Drainage area.—236 square miles, planimetered on U. S. G. S. topographic maps. 1907–1912, inclusive, area considered 240 square miles, based on published records.

Records available.—January 1, 1903, to June 30, 1917.

Gage.—Standard Board of Water Supply chain gage, and Friez automatic water-stage recorder. Gage is read twice daily.

Discharge measurements.—From highway bridge; at low stages by wading 600 feet downstream from bridge.

Control.—Gravel bed, some small boulders. Affected by extreme freshets. Clear span, 187.5 feet. During low stages, dead water from Sta. 60 upward. Channel above bridge straight for about 300 feet. Channel below bridge straight for about 600 feet, with tendency to bifurcate at this point, where wading measurements are made. Both banks high, clean, and not liable to overflow except in extreme freshets.

Extremes of discharge.—Current year: Maximum stage recorded, 10.24 feet on March 27 at 10 P. M.; discharge, 7,600 second-feet. Minimum stage recorded, 4.68 feet on September 14; discharge, 53 second-feet.

* The 930 square miles used above is the result of a joint determination of drainage areas, based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer, and replaces the figure 909 previously used in the reports of the State Engineer.

1907-1917: Maximum stage recorded, 13.10 feet on March 27, 1913, at 4:45 P. M.; discharge, 16,500 second-feet. Minimum stage recorded, 4.13 feet on August 3, 1913; discharge, 5 second-feet.

Winter flow.—Discharge relation seriously affected by ice conditions. Flow determined by meter measurements and climatological data.

Accuracy.—Discharge rating curve fairly well defined. Beginning October 1, 1915, discharge is computed from record of automatic water-stage recorder.

Coöperation.—Maintained by Board of Water Supply of the city of New York.

Climatological observations are made at this station.

Daily discharge, in second-feet, of SCHOHARIE CREEK AT PRATTSVILLE, for the year ended June 30, 1917. Mary E. Stickles, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	175	365	150	157	134	1,195	288	271	456	1,881	523	*601
2.....	131	271	*117	113	150	777	277	254	320	2,921	542	542
3.....	227	222	100	106	142	600	277	238	216	2,319	462	474
4.....	254	194	87	100	134	530	260	208	179	1,401	406	396
5.....	175	166	85	95	203	488	354	184	163	1,054	628	351
6.....	146	146	85	93	254	436	530	161	148	971	900	439
7.....	128	134	85	*82	*213	388	410	142	141	971	*1,028	1,099
8.....	120	131	79	82	184	347	354	161	187	780	1,175	1,155
9.....	117	203	65	72	175	360	354	150	*255	705	*1,175	726
10.....	203	238	61	72	203	393	382	130	240	594	998	642
11.....	146	175	59	69	194	404	340	106	391	555	844	1,155
12.....	126	138	57	69	170	347	288	87	2,152	726	820	*2,431
13.....	208	126	57	72	157	294	382	82	876	860	971	1,357
14.....	428	120	53	69	194	301	2,314	76	608	615	712	1,017
15.....	222	113	488	76	208	201	1,040	74	386	561	601	900
16.....	175	100	720	67	194	190	649	*69	396	510	*561	726
17.....	175	87	314	67	166	185	468	61	492	462	581	601
18.....	189	76	208	74	170	190	410	72	450	542	480	498
19.....	157	69	170	72	157	196	365	61	308	796	*439	439
20.....	150	65	138	968	150	190	340	90	428	1,265	406	364
21.....	126	65	120	656	150	272	314	79	406	*1,412	375	326
22.....	120	61	103	470	113	428	334	69	450	1,390	406	*250
23.....	117	*72	98	351	138	534	334	59	662	884	396	221
24.....	100	745	113	282	1,295	393	314	51	2,139	804	375	235
25.....	100	254	98	232	607	389	294	46	1,445	719	332	*212
26.....	*1,165	153	98	213	506	326	282	79	1,489	548	291	199
27.....	*2,170	184	87	184	464	298	266	2,412	2,625	498	326	900
28.....	1,511	288	85	170	399	283	238	785	3,276	444	523	439
29.....	857	393	90	208	388	308	260	.....	*1,643	386	1,165	391
30.....	593	238	249	150	1,567	256	320	.....	1,165	492	944	391
31.....	470	161	.....	123	.....	232	299	.....	868	.....	705	.....
Mean...	354	186	144	181	306	378	431	223	805	936	618	649

* Meter measurement.

r New rating curve in effect, beginning March 1.

NOTE.—Ice conditions prevailed from December 15 to January 13, inclusive, January 18 to February 26, inclusive, and March 4 to 11, inclusive.

Monthly discharge, in second-feet, of SCHOHARIE CREEK AT PRATTSVILLE, for the year ended June 30, 1917

[Drainage area, 236 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	2,170	100	354	1.50	1.734
August.....	745	61	186	0.79	0.909
September.....	729	53	144	0.61	0.679
October.....	968	67	181	0.77	0.887
November.....	1,567	113	306	1.30	1.451
December.....	1,195	185	378	1.60	1.851
January.....	2,314	238	431	1.83	2.105
February.....	2,412	46	223	9.45	0.984
March.....	3,276	141	805	3.41	3.932
April.....	2,921	386	936	3.97	4.425
May.....	1,175	291	648	2.75	3.168
June.....	2,431	199	649	2.75	3.068
The year*	3,276	46	438	1.86	25.191

* Computed by State Engineer.

SCHOHARIE CREEK AT MIDDLEBURG

Location.— At highway bridge over Schoharie creek at Middleburg.

Drainage area.— 532 square miles.* (From U. S. G. S. topographic maps.)

Records available.— August 24, 1906, to June 30, 1916.

Gage.— Staff in two sections, the lower attached to the end of a timber crib about 400 feet below the bridge, and the upper section secured to rubble retaining wall about 160 feet below bridge. Read twice daily — at 9 A. M. and 5 P. M. — to half-tenths.

Discharge measurements.— From bridge and by wading.

Control.— Riffle about 1,600 feet below bridge. The bed of the stream is of gravel and cobblestones and fairly smooth and permanent. The stream overflows the banks during floods.

Extremes of discharge.— Current year: Maximum stage recorded, 10 feet on January 14 at 2:30 P. M.; discharge, approximately 15,200 second-feet. Minimum stage recorded, 0.84 feet on August 23 at 3:30 P. M.; discharge, 67 second-feet.

1906–1917: Maximum recorded discharge, February 20, 1909, at 9 A. M., approximately 31,600 second-feet. Minimum discharge recorded, September 14 to 21, inclusive, 1913, 12 second-feet.

* The 532 square miles used above is the result of a joint determination of drainage areas, based on independent computations by engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer, and replaces the figure 527 previously used in reports of the State Engineer.

Winter flow.—Very slight effect from ice, open-water rating curve used.

Accuracy.—New rating curve used, beginning October 1, 1915; well defined to a gage height of 6 feet.

Discharge measurements of SCHORLIE CREEK AT MIDDLEBURG, for a period ended June 30, 1917

DATE	Made by	Gage height	Discharge
1915		<i>Feet</i>	<i>Sec.-ft.</i>
Dec. 8	G. E. Gibson and M. W. Grimes.....	1.51	251
1916			
June 29	M. W. Grimes and J. Labishner.....	1.69	325
July 20	M. W. Grimes and C. H. Hinds.....	1.48	243
July 20	M. W. Grimes and C. H. Hinds.....	1.53	258
Aug. 23	M. W. Grimes and P. F. Scully.....	0.84	77.8
Aug. 24	M. W. Grimes and P. F. Scully.....	2.68	980
Sept. 16	M. W. Grimes and P. F. Scully.....	2.90	1,085
1917			
Feb. 21	P. F. Scully and J. Labishner.....	1.89	188
Feb. 27	G. E. Gibson and P. F. Scully.....	5.74	4,855
Feb. 28	G. E. Gibson and P. F. Scully.....	3.65	1,797

Daily gage height, in feet, of SCHORLIE CREEK AT MIDDLEBURG, for the year ended June 30, 1917. George L. Danforth, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1.42	1.90	1.25	1.50	1.32	3.62	2.18	2.50	2.70	4.70	4.28	2.78
2.....	1.32	1.70	1.25	1.32	1.35	2.88	2.02	2.38	2.32	6.05	2.70	2.68
3.....	1.95	1.52	1.15	1.22	1.35	2.55	1.88	1.88	2.10	5.55	2.60	2.58
4.....	1.98	1.45	1.05	1.12	1.32	2.40	1.88	1.62	1.98	4.20	2.38	2.42
5.....	1.78	1.40	1.02	1.05	1.32	2.40	2.05	1.72	1.75	3.60	2.75	2.22
6.....	1.62	1.32	0.98	1.08	1.82	2.38	3.00	1.88	1.70	3.60	3.50	2.38
7.....	1.42	1.30	1.28	1.05	1.72	2.28	2.50	2.00	1.70	3.75	3.92	3.05
8.....	1.35	1.25	1.12	1.00	1.58	2.15	2.45	2.06	1.72	3.40	4.00	3.80
9.....	1.35	1.28	1.05	0.95	1.50	2.20	2.20	2.02	2.18	3.30	4.12	3.10
10.....	1.50	1.40	1.00	0.95	1.55	2.60	2.30	2.10	2.02	2.95	3.80	2.88
11.....	1.52	1.40	0.98	0.95	1.58	2.20	2.45	2.02	2.18	2.85	3.45	3.05
12.....	1.42	1.40	0.90	0.95	1.50	2.18	2.32	1.92	0.25	3.22	3.25	5.90
13.....	1.55	1.35	0.85	0.90	1.50	2.02	2.40	1.82	3.60	3.32	3.60	4.32
14.....	3.05	1.25	0.85	0.95	1.62	1.88	4.25	1.75	3.68	2.95	3.28	3.70
15.....	2.12	1.08	1.65	1.00	1.75	1.82	4.22	1.80	3.72	2.75	2.85	3.68
16.....	1.82	1.05	2.95	0.95	1.60	1.85	2.90	1.80	3.18	2.60	2.72	3.35
17.....	1.72	1.00	2.05	0.95	1.60	1.98	2.70	1.85	2.92	2.60	2.82	3.05
18.....	1.92	0.95	1.70	0.95	1.50	1.95	2.55	1.80	2.90	2.65	2.52	2.75
19.....	1.72	0.90	1.50	0.98	1.50	1.90	3.50	1.85	2.38	2.88	2.38	2.60
20.....	1.50	0.85	1.42	3.17	1.50	1.88	3.05	1.92	2.12	3.65	2.30	2.40
21.....	1.42	0.85	1.32	2.95	1.48	1.70	3.18	1.92	2.35	3.78	2.30	2.42
22.....	1.40	0.85	1.25	2.20	1.40	1.90	3.08	1.78	2.70	3.80	2.35	2.12
23.....	1.48	0.85	1.25	1.88	1.45	2.20	2.98	1.68	3.30	3.35	2.42	2.02
24.....	1.38	2.12	1.28	1.75	3.62	2.48	2.82	1.68	5.70	3.05	2.28	2.08
25.....	1.32	1.80	1.16	1.62	2.75	2.40	2.50	1.80	4.60	2.78	2.18	2.02
26.....	1.45	1.40	1.10	1.52	2.12	2.32	2.45	2.40	4.55	2.60	2.08	1.78
27.....	4.45	1.58	1.10	1.45	2.05	2.10	2.32	6.00	4.75	2.55	2.02	3.12
28.....	3.52	1.70	1.05	1.40	2.08	2.20	2.20	3.62	6.30	2.48	2.55	2.45
29.....	2.80	2.00	1.12	1.40	2.20	2.20	2.35	.....	4.65	2.30	3.65	2.30
30.....	2.22	1.70	1.65	1.58	3.65	2.20	2.55	.....	3.90	2.45	3.40	2.40
31.....	2.08	1.42	.....	1.38	.....	2.20	2.68	.....	3.40	.....	2.95	.....

GAGING OF STREAMS: MOHAWK RIVER BASIN 385

Daily discharge, in second-feet, of SCHOHARIE CREEK AT MIDDLEBURG, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	222	435	168	250	189	1,820	597	810	960	3,170	2,600	1,020
2.....	189	237	168	189	199	1,100	502	728	698	5,380	960	945
3.....	462	258	139	159	199	847	425	425	547	4,680	884	869
4.....	479	232	114	131	189	740	425	301	479	2,500	727	754
5.....	375	215	107	114	189	740	519	348	380	1,800	1,000	621
6.....	301	189	97	121	395	726	1,210	425	337	1,990	1,000	726
7.....	222	183	177	114	346	659	810	490	337	1,960	2,150	1,250
8.....	199	169	131	102	263	578	775	519	348	1,590	2,250	2,020
9.....	199	177	114	90	250	609	609	502	597	1,490	2,390	1,300
10.....	250	215	102	90	270	884	672	547	502	1,170	2,020	1,100
11.....	258	215	97	90	283	609	775	502	597	1,080	1,640	1,850
12.....	222	215	80	90	290	596	686	446	5,760	1,410	1,440	5,100
13.....	270	199	70	80	250	502	740	395	1,800	1,510	1,800	2,650
14.....	1,260	169	70	90	301	465	2,560	260	1,870	1,170	1,470	1,910
15.....	559	121	314	102	360	395	2,520	385	1,930	1,000	1,080	1,890
16.....	395	114	1,170	90	292	410	1,120	385	1,370	884	980	1,540
17.....	346	162	519	90	292	479	960	410	1,140	884	1,060	1,260
18.....	446	90	337	90	250	462	847	385	1,120	922	825	1,000
19.....	346	80	250	97	250	435	1,690	410	726	1,100	727	884
20.....	250	70	222	1,370	250	425	1,250	446	549	1,860	672	740
21.....	222	70	189	1,170	243	337	1,370	446	706	2,000	672	754
22.....	215	70	168	609	215	435	1,280	375	960	2,020	706	559
23.....	243	70	163	425	232	609	1,190	328	1,490	1,540	754	502
24.....	209	559	177	360	1,820	796	1,060	328	4,750	1,250	659	536
25.....	189	385	147	301	1,000	740	810	385	2,890	1,020	567	502
26.....	232	215	126	258	559	686	775	740	2,960	884	536	375
27.....	2,820	283	126	232	519	547	686	5,290	3,240	847	502	1,320
28.....	1,710	387	114	215	586	609	609	1,820	5,860	706	847	775
29.....	1,040	496	131	215	609	609	706	.....	3,100	672	1,850	672
30.....	621	337	134	283	1,850	609	847	.....	2,130	775	1,590	740
31.....	536	222	.....	209	.....	609	965	.....	1,590	.....	1,170	.....
Mean....	469	226	254	252	429	646	967	676	1,667	1,636	1,234	1,205

NOTE.— Discharge probably affected by ice from about January 1 to March 12.

Monthly discharge of SCHOHARIE CREEK AT MIDDLEBURG, for the year ended June 30, 1917

[Drainage area, 532 square miles]

Months	DISCHARGE IN SECOND-FEET				Run-off
	Maximum	Minimum	Mean	Pes square mile	Depth in inches on drainage area
July.....	2,820	189	493	0.927	1.07
August.....	559	70	220	0.414	0.48
September.....	1,170	70	394	0.368	0.43
October.....	1,370	80	252	0.474	0.56
November.....	1,850	189	429	0.806	0.90
December.....	1,820	337	646	1.214	1.40
January.....	2,560	425	967	1.818	2.10
February.....	5,290	301	676	1.272	1.32
March.....	5,860	337	1,667	3.134	3.61
April.....	5,380	672	1,636	3.079	3.43
May.....	2,600	502	1,234	2.320	2.68
June.....	5,100	375	1,205	2.265	2.63
The year.....	5,860	70	803	1.509	20.50

SCHOHARIE CREEK AT CENTRAL BRIDGE

This station, established April 3, 1904, and maintained by this Department in coöperation with the United States Weather Bureau, is located on the D. & H. R. R. bridge across Schoharie creek near Schoharie Junction. Discharge is not computed at this station. The water-surface elevations are referred to United States Geological Survey datum. A standard chain gage attached to the downstream truss is read twice daily—between 6 and 7:30 A. M. and between 4:30 and 7 P. M.—to half-tenths.

Daily elevation of water-surface (U. S. G. S. datum) of SCHOHARIE CREEK AT CENTRAL BRIDGE, for the year ended June 30, 1917. A. M. Spencer, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	a	567.88	567.15	567.48	567.25	570.50	569.80	571.92	572.85	572.00	568.90	569.35
2	a	567.65	567.05	567.20	567.35	569.32	569.75	571.75	571.90	572.25	569.00	568.95
3	567.72	567.48	566.90	567.08	567.35	568.80	569.70	571.58	571.50	572.65	568.88	568.55
4	568.00	567.38	566.92	567.05	567.32	568.58	569.65	571.45	571.15	571.12	568.65	568.15
5	567.92	567.28	566.90	567.08	567.48	568.62	569.62	571.22	570.98	570.45	569.10	567.85
6	567.75	567.18	566.95	567.02	567.85	568.40	570.52	571.08	570.68	570.28	570.80	569.60
7	567.60	567.08	567.02	567.02	567.75	568.32	570.02	570.98	570.55	570.75	570.82	569.05
8	567.52	566.98	567.12	567.05	567.70	568.22	570.02	570.92	570.55	569.92	571.10	568.38
9	567.48	567.50	567.10	567.08	567.70	568.20	569.80	570.82	570.90	569.68	570.88	568.22
10	567.45	567.45	567.00	567.05	567.75	568.80	569.80	570.78	571.08	569.45	570.50	568.15
11	567.60	567.55	567.00	567.02	567.38	568.32	570.05	570.70	571.80	569.25	570.15	568.58
12	567.48	567.45	566.95	567.05	567.60	568.22	569.92	570.65	571.12	569.52	569.85	572.00
13	568.70	567.25	566.88	567.08	567.60	568.15	569.95	570.62	571.20	569.55	569.85	571.20
14	569.50	567.10	566.80	567.05	567.70	568.15	570.82	570.60	573.90	569.20	569.42	569.60
15	568.30	567.10	567.48	567.05	567.68	568.52	575.70	570.58	571.75	569.08	569.05	569.32
16	568.00	567.02	568.80	566.98	567.65	568.70	575.15	570.50	571.62	569.00	569.00	568.85
17	567.75	567.02	568.15	568.95	567.60	568.70	574.25	570.50	571.05	569.00	569.05	568.55
18	567.80	567.02	567.68	566.92	567.60	568.70	573.40	570.50	570.95	569.08	568.02	568.42
19	567.82	567.00	567.45	567.02	567.60	568.70	573.05	570.48	570.32	569.15	568.65	568.30
20	567.58	566.98	567.35	567.25	567.48	568.60	572.88	570.45	570.10	569.78	568.45	568.38
21	567.42	566.90	567.25	568.50	567.35	568.95	572.70	570.42	569.95	570.20	568.32	568.25
22	567.38	566.88	567.20	568.32	567.30	569.12	572.90	570.38	569.85	570.20	568.50	568.12
23	567.48	566.78	567.18	567.95	567.30	569.28	572.98	570.32	570.75	569.75	568.60	567.98
24	567.38	567.82	567.15	567.68	569.10	569.65	572.75	570.30	574.22	569.32	568.50	567.92
25	567.30	567.80	567.12	567.62	569.30	569.85	572.50	570.30	572.25	569.08	568.41	567.88
26	567.32	567.30	567.08	567.60	568.25	569.90	572.28	571.15	572.10	568.90	568.38	567.80
27	570.78	567.35	567.05	567.50	568.25	569.90	573.15	580.18	572.15	568.80	568.35	569.90
28	569.45	567.85	566.98	567.40	568.10	569.88	572.05	575.00	574.50	568.72	570.85	569.30
29	568.98	568.08	569.95	567.25	568.05	569.90	571.95	.....	571.72	568.58	571.50	568.95
30	568.40	567.65	567.35	567.20	569.30	569.90	572.12	.....	570.95	568.50	570.60	568.55
31	568.05	567.48	.....	567.18	.....	569.80	572.10	.....	570.52	.....	569.90	.....

a No record; chain stolen.

SCHOHARIE CREEK AT FORT HUNTER

This station, located on Schoharie creek above the State feeder dam at Fort Hunter, was originally established by the U. S. Deep Waterways Survey, September 24, 1898. Reestablished November 17, 1904, in coöperation with the U. S. Weather Bureau, it is now maintained by this Department. Because of unfavorable conditions, increased leakage and indeterminate diversion for the supply of the Erie canal, discharge estimates were discontinued December 31, 1914. A chain gage on the downstream side near the south end of the highway bridge about 500 feet above the dam is read twice daily—at 8 A. M. and 5 P. M.—to tenths.

Daily elevation of water-surface (B. C. datum) of SCHOHARIE CREEK AT FORT HUNTER, for the year ended June 30, 1917. C. E. Wing, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	281.55	281.65	281.05	280.85	281.4	283.05	281.9	282.85	285.85	283.6	281.95	282.2
2.....	281.6	281.55	280.85	280.95	281.3	282.35	281.8	282.75	284.7	283.95	282.0	282.2
3.....	281.75	281.5	280.65	281.06	281.4	282.25	281.9	282.45	284.05	283.65	282.15	282.05
4.....	281.55	281.55	280.7	281.0	281.5	282.0	282.0	282.2	283.25	283.2	282.3	281.95
5.....	281.5	281.5	280.65	281.9	281.7	282.1	282.25	282.2	282.8	282.9	282.45	281.9
6.....	281.55	281.4	280.7	281.05	281.7	282.05	282.2	282.2	282.45	282.8	283.15	281.8
7.....	281.5	281.35	280.75	281.0	281.6	282.0	282.6	282.25	282.2	282.7	282.85	281.95
8.....	281.4	281.15	280.9	280.9	281.6	281.9	282.4	282.5	282.4	282.6	282.9	282.55
9.....	281.25	281.3	280.85	280.75	281.5	281.95	282.35	282.4	282.8	282.5	282.9	282.7
10.....	281.3	281.25	279.35	280.55	281.65	281.8	282.55	282.4	283.35	282.35	282.8	282.55
11.....	281.25	281.3	280.25	280.75	281.8	282.05	282.45	282.4	283.1	282.25	282.65	283.95
12.....	281.4	281.45	280.3	280.75	281.6	281.9	282.3	282.4	284.55	282.05	282.5	284.8
13.....	281.45	281.55	280.15	280.35	281.5	281.8	282.2	282.4	287.5	282.1	282.4	283.9
14.....	281.35	281.1	280.2	280.15	281.5	281.8	282.35	282.4	286.35	282.1	282.3	283.0
15.....	281.55	280.75	280.15	280.1	281.55	281.7	283.85	282.4	284.45	282.05	282.25	282.55
16.....	281.5	280.85	280.55	280.15	281.5	281.7	283.1	282.5	284.25	282.0	282.1	282.45
17.....	281.55	280.85	280.65	280.1	281.5	281.6	282.7	282.5	284.3	282.0	282.1	282.4
18.....	281.65	280.7	281.65	280.2	281.5	281.6	282.5	282.4	285.45	281.95	282.0	282.3
19.....	281.6	280.45	281.5	280.4	281.5	281.55	282.35	282.3	284.95	281.85	282.0	282.2
20.....	281.5	280.4	281.35	280.8	281.5	281.5	282.2	282.15	283.5	282.4	282.0	282.1
21.....	281.45	280.35	281.3	281.9	281.5	281.6	282.2	282.0	282.9	282.7	281.9	282.1
22.....	281.35	280.25	281.4	281.85	281.4	281.95	282.2	281.9	283.25	282.6	281.9	282.0
23.....	281.4	280.2	281.65	281.7	281.4	282.1	282.15	281.8	283.6	282.4	281.9	282.0
24.....	281.3	280.3	281.55	281.7	281.7	282.0	282.2	281.8	286.3	282.25	282.0	282.0
25.....	281.3	280.3	280.95	281.65	282.3	282.0	282.1	281.8	283.9	282.1	282.05	282.15
26.....	281.35	280.9	280.85	281.6	282.15	281.9	281.95	282.1	284.0	282.1	281.9	282.25
27.....	281.6	281.35	280.8	281.5	281.85	281.9	281.9	286.1	284.15	282.1	281.8	282.55
28.....	282.1	281.3	280.85	281.4	281.8	281.85	281.8	288.05	284.55	282.05	281.9	282.33
29.....	282.05	281.3	280.75	281.35	281.8	282.0	281.8	.....	283.75	282.0	282.3	282.05
30.....	281.85	281.25	280.95	281.4	283.25	281.9	282.3	.....	283.4	281.95	282.4	282.2
31.....	281.8	281.2	.....	281.4	.....	281.8	282.45	.....	282.75	.....	282.3	.....

ALPLAUS KILL**ALPLAUS KILL NEAR CHARLTON**

Location.— At highway bridge about $\frac{1}{2}$ mile southwest of the village of Charlton, Saratoga county.

Drainage area.— 24.9 square miles. (Measured by engineers of New York State Conservation Commission.)

Records available.— August 12, 1913, to October 14, 1916, when station was discontinued.

Gage.— Barrett and Lawrence hydro-chronograph on left bank, just above bridge; installed March 23, 1916; Stevens water-stage recorder in operation October 5 to December 18, 1915, inclusive. Water-stage recorder inspected by E. B. Litts.

Discharge measurements.— Made from bridge or by wading.

Channel and control.— Gravel and large boulders; shifting occasionally.

Extremes of discharge.— 1913–1917: Maximum stage from water-stage recorder, 15.3 feet at 3:30 A. M., July 27, 1915; discharge, not determined. Practically no flow August 16 to 29 and September 5 to 21, 1913.

Ice.— Stage-discharge relation affected by ice; winter discharge not determined.

Regulation.— Some diurnal fluctuation is caused during the spring months by the operation of a grist-mill a short distance upstream.

Accuracy.— Stage-discharge relation probably permanent between shifts at times of flood. Rating curve used, July 1 to October 14, 1916, well defined for low stages. Operation of water-stage recorder satisfactory. Daily discharge ascertained by applying to the rating table mean daily gage height, determined by inspecting gage height graph or for days of considerable fluctuation, by averaging the hourly discharge. Results fair.

Coöperation.— Station established and maintained by United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of ALPLAUS KILL NEAR CHARLTON, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
July 18.....	C. C. Covert.....	Feet 9.64	Sec.-ft. 2.37
Aug. 24.....	C. C. Covert.....	9.64	3.28

NOTE.—Both measurements made by wading.

Daily discharge, in second-feet, of ALPLAUS KILL NEAR CHARLTON, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	DAY	July	Aug.	Sept.	Oct.
1.....	7.4	2.2	2.5	5.0	15.....	6.0	1.0	9.8	.....
2.....	6.6	1.4	2.7	4.0	17.....	4.3	1.0	5.3	.....
3.....	52.6	1.1	2.6	3.6	18.....	4.7	.8	4.4	.....
4.....	64.0	1.1	2.1	3.2	19.....	5.2	1.3	4.0	.....
5.....	28.0	1.3	2.4	3.1	20.....	4.6	1.3	5.7	.....
6.....	18.0	1.3	4.0	2.6	21.....	4.3	1.1	3.1	.....
7.....	8.8	1.1	4.3	2.3	22.....	4.3	1.0	2.8	.....
8.....	6.8	.6	4.2	2.8	23.....	4.3	2.8	2.8	.....
9.....	6.0	1.0	3.9	3.0	24.....	4.2	7.0	2.8	.....
10.....	7.4	1.6	3.1	3.1	25.....	3.6	4.3	2.8	.....
11.....	12.0	1.4	2.8	3.2	26.....	3.6	3.3	2.8	.....
12.....	6.8	1.3	2.2	3.2	27.....	4.4	2.8	2.7	.....
13.....	8.8	1.3	1.8	3.8	28.....	4.2	3.1	2.5	.....
14.....	16.0	1.4	1.4	10.0	29.....	3.0	4.2	3.1	.....
15.....	8.2	1.0	5.8	.....	30.....	2.8	3.7	7.6	.....
					31.....	2.8	3.0	.....	.....
					Mean.....	10.1	3.0	3.5	3.6

Monthly discharge of ALPLAUS KILL NEAR CHARLTON, for the year ended June 30,
1917

[Drainage area, 24.9 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	64.0	2.8	10.1	0.405	0.47
August.....	7.0	0.8	2.0	0.083	0.10
September.....	9.8	2.0	3.5	0.149	0.16

ESOPUS CREEK

DESCRIPTION

Esopus creek has its source in Winnisook lake on the north-western slope of Slide mountain, the highest peak of the Catskills. From Big Indian to Olive Bridge the stream flows through a deep valley, flanked on both sides by timber-covered mountains. Numerous sites for dams or storage reservoirs are offered at points where the valley broadens out for a short distance to receive the inflowing waters of tributaries. The stream channel is relatively broad and shallow. The bed is covered with cobbles and small boulders left behind after the erosion of drift deposits, which formerly filled the valley. The drainage basin of Esopus creek is shown on the Margaretville, Phoenicia, Kaaterskill, Catskill, Slide Mountain, Rosendale and Rhinebeck sheets of the U. S. Geological Survey topographic maps. This stream is of great economical importance, owing to its relatively large yield and its location. The Ashokan reservoir, with a water-surface of 12 square miles and a total drainage area above the dam of 257 square miles, is one of the sources of water-supply for New York city.

Drainage areas of ESOPUS CREEK *

(From U. S. G. S. Topographic Maps)

LIMITS	AREA IN SQUARE MILES	
	Place to place	Total
<i>Beaver Kill (Mink Hollow)</i>		
Source to about $\frac{1}{2}$ mile north of Lake Hill.....	8.42	8.42
ESOPUS CREEK		
Source to Coldbrook, at highway bridge.....	183.72	192.14
Coldbrook to Olive Bridge dam.....	64.38	256.52
Olive Bridge dam to pulp-mill, about $1\frac{1}{2}$ miles south of Brown's Station.....	7.01	263.53
Pulp-mill to Kingston, at highway bridge.....	53.54	317.07
<i>Saw Kill</i>		
Source to about $4\frac{1}{2}$ miles below Woodstock.....	32.99	.....
ESOPUS CREEK		
Kingston to Leggs Mills, about $\frac{1}{2}$ mile northwest of Lake Katrine railroad station.....	19.72	369.78
<i>Plattekill Creek</i>		
Source to below pond, about 2 miles east of West Saugerties.....	17.35	387.13
ESOPUS CREEK		
Leggs Mills to Glenerie, about 1 mile south of Mount Marion station at dam below W. S. R. R. bridge.....	28.95	416.08
Glenerie to Mount Marion, at highway bridge.....	2.13	418.21
Mount Marion to Saugerties, at dam below highway bridge.....	6.00	424.21

* This table of drainage areas is the result of a joint determination of areas, based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

ESOPUS CREEK AT COLDBROOK

Location.—At highway bridge about 1,000 feet above Coldbrook railroad station on U. & D. R. R.; about 6 miles west of Ashokan.

Drainage area.—192 square miles.* (Measured on U. S. G. S. topographic maps.)

Records available.—August 27, 1913, to June 30, 1917.

Gages.—Standard B. W. S. chain gage, read twice daily. A Bristol water-level gage with charts for range of 20 feet. On June 15, 1916, a Friez automatic register was installed. These gages are located on the downstream side of the highway bridge.

Discharge measurements.—At low stages, made by wading; at high stage, from the highway bridge (clear span of 160 feet).

Control.—Coarse gravel, apparently permanent, and numerous small boulders and some riprap. Channel above station straight for about three hundred feet; water swift. Channel below station straight for about one thousand feet; water swift. Right bank high, grassed and largely covered with brush, not liable to overflow. Left bank high, wooded, not liable to overflow.

Extremes of discharge.—Current year: Maximum stage, 8.75 feet on July 27 at 3:00 A. M.; discharge, 6,208 second-feet. Minimum stage recorded, 3.34 feet on September 14 and October 13; discharge, 39 second-feet.

1913–1917: Maximum stage recorded, 12.75 feet on November 9, 1913, at 8 P. M.; discharge, about 21,400 second-feet. Minimum stage recorded, 3.21 feet on October 14, 1914; discharge, 8 second-feet.

Winter flow.—Discharge relation seriously affected by ice. Flow determined by meter and float measurements and climatological data.

Accuracy.—Discharge rating curve well defined up to a gage height of 10 feet.

Coöperation.—Established and maintained by the Board of Water Supply of the city of New York. Turbidity and climatological observations are made at this station.

* The 192 square miles used above is the result of a joint determination of drainage areas based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

Daily discharge, in second-feet, of ESOPUS CREEK at COLDBROOK, for the year ended June 30, 1917. J. H. Robinson, Observer

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	246	498	*75	72	145	1,285	272	276	276	2,346	511	506
2.....	250	418	60	62	145	968	296	240	223	8,772	583	495
3.....	520	350	63	60	140	722	280	206	191	2,724	480	495
4.....	302	306	57	55	138	610	292	191	179	*1,877	465	415
5.....	279	274	55	52	160	550	338	178	172	1,490	816	375
6.....	274	254	69	*52	183	484	538	163	166	1,430	770	455
7.....	*254	238	57	45	160	*425	410	150	163	*1,860	722	766
8.....	286	214	*52	41	100	385	370	172	*276	1,055	758	653
9.....	280	201	47	41	155	370	356	150	338	912	779	579
10.....	246	*189	47	41	160	865	360	124	410	*758	772	653
11.....	197	181	45	41	157	325	816	103	1,510	658	716	1,506
12.....	177	174	43	41	150	316	*318	83	3,410	646	688	2,516
13.....	219	155	41	38	152	296	229	75	1,028	646	716	1,670
14.....	274	144	39	48	160	272	2,235	72	480	607	613	1,300
15.....	230	188	338	43	155	232	1,150	*69	380	571	552	1,028
16.....	222	141	269	43	150	219	977	60	405	*529	522	824
17.....	226	125	155	48	147	279	780	65	430	485	500	667
18.....	238	*98	130	43	145	215	568	72	455	*476	480	571
19.....	214	98	111	130	142	282	562	60	880	607	480	480
20.....	193	93	91	*673	147	222	532	83	355	1,150	385	415
21.....	171	84	83	420	140	292	*430	66	*380	1,380	365	370
22.....	173	82	*69	325	135	460	338	57	425	1,330	855	222
23.....	161	84	75	*965	282	574	851	52	495	1,046	855	303
24.....	158	101	79	219	*1,058	420	325	50	1,210	624	335	307
25.....	155	84	69	197	688	360	320	47	1,210	674	323	268
26.....	586	82	62	195	502	808	300	222	1,380	558	295	773
27.....	3,696	110	57	169	435	320	247	820	2,633	523	320	*1,330
28.....	1,391	107	57	160	405	308	244	435	*8,959	479	848	667
29.....	980	113	57	150	390	288	247	.....	*2,214	420	619	619
30.....	751	87	111	150	1,428	262	296	.....	1,650	475	577	571
31.....	616	79	.....	142	.....	947	280	.....	1,320	.....	541	.....
Mean.....	449	171	86	180	280	406	472	144	606	1,061	536	739

* Meter measurement. e Estimated. r New rating curve in effect beginning March 12.

NOTE.—Flow is computed from record of Fries automatic register. From January 15 to 31, inclusive, computed from mean of two chain gage heights per day. Ice conditions prevailed on January 12 and from February 2 to March 11, inclusive.

Monthly discharge of ESOPUS CREEK AT COLDBROOK, for the year ended June 30, 1917

[Drainage area, 192 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	3,696	155	449	2.34	2.692
August.....	498	70	171	0.69	1.025
September.....	338	39	86	0.45	0.498
October.....	673	39	130	0.68	0.782
November.....	1,428	185	280	1.46	1.627
December.....	1,285	215	406	2.11	2.438
January.....	2,235	244	472	2.46	2.834
February.....	520	47	144	0.75	0.781
March.....	3,959	163	906	4.72	5.441
April.....	3,772	420	1,061	5.53	6.166
May.....	816	295	536	2.79	3.219
June.....	2,516	263	720	3.80	4.237
The year*	3,950	39	449	2.84	31.760

* Computed by State Engineer.

ESOPUS CREEK AT MOUNT MARION

Location.—At downstream side of Pleasant Valley bridge over Esopus creek, about $\frac{3}{4}$ mile east of Mount Marion railroad station on West Shore railroad, and about 3 miles above Saugerties.

Drainage area.—Total drainage area above Mount Marion is 418 square miles as measured on U. S. G. S. topographic maps. Of this area 33 square miles of the Sawkill watershed is diverted for the Kingston water-supply, 17 square miles of the Plattekill watershed for the Saugerties water-supply, and 257 square miles at Brown's Station for New York city water-supply.

The conduit of the Olive Bridge dam was closed September 9, 1913, at 6:05 P. M., thereafter influencing the flow by storage and waste.

There remains an effective drainage area of 111 square miles above this station, when no water is being wasted from the three points of diversion.

The square miles used above are the result of a joint determination of drainage areas based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

For the Board of Water Supply records for the years 1907 to 1912, inclusive, the drainage area was called 378 square miles (does not include Sawkill and Plattekill diversions), based on published records at Kingston.

Records available.—April 4, 1907, to June 30, 1917.

Gage.—Standard Board of Water Supply chain gage read twice daily. Staff gage for low flows.

Discharge measurements.—At low stages, wading measurements are made at point about $\frac{3}{4}$ mile above bridge, where bottom is sandy with no gravel. At high stages, from bridge.

Control.—Bed of stream mostly ledge-rock, with strata steeply inclined, giving jagged corners and a very irregular cross-section. Channel above bridge station straight for about 1,000 feet; water sluggish except in high stage. Channel below station straight for about 700 feet; swift at a distance of about 600 feet below station, where rift is located. Right bank about 40 feet high, steep and

wooded. Left bank about 100 feet high, steep and rocky for about 40 feet above stream bed, and then wooded.

Extremes of discharge.—Current year: Maximum stage recorded, 17.95 feet on March 28 at 5:00 P. M.; discharge, 6,720 second-feet. Minimum stage recorded, 10.50 feet on October 18; discharge, 26 second-feet.

From April 4, 1907, to September 9, 1913 (closing of conduit in Olive Bridge dam), maximum discharge observed was 28,000 second-feet on April 26, 1910, at 1:30 P. M.; maximum stage, 25.10 feet. Minimum discharge for this period was 27 second-feet on September 1, 1907, for minimum stage of 10.45 feet.

Since the impounding of water in the Ashokan reservoir (September 9, 1913), up to December 31, 1915, the maximum discharge of 10,396 second-feet for a stage of 19.22 feet occurred on February 25, 1915, at 8 A. M. Minimum stage for this period, 10.50 feet on October 18, 1916; discharge, 26 second-feet.*

Winter flow.—Discharge relation affected by ice. Flow determined by meter measurements and climatological data.

Diversion.—For Kingston and Saugerties water-supplies see drainage area above.

Regulation.—Affected by storage and waste from Ashokan reservoir at Brown's Station, capacity, 132 billion gallons.

Accuracy.—Discharge rating curve fairly well defined. Soundings for measurements at bridge, on account of irregular cross-section, are computed from standard cross-section.

Coöperation.—Established and maintained by the Board of Water Supply of the city of New York.

* See note at bottom of page 382, Report of State Engineer and Surveyor for 1916, Vol. II.

Daily discharge, in second-feet, of ESOPUS CREEK AT MOUNT MARION, for the year ended June 30, 1917. John Sauer, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	104	672	47	55	55	992	316	485	502	2,215	502	502
2.....	96	798	47	51	55	644	386	432	370	2,780	630	*429
3.....	297	786	44	*47	55	471	424	318	311	3,950	580	378
4.....	155	786	44	41	53	351	508	296	266	3,204	532	352
5.....	124	786	39	41	57	344	555	296	219	2,325	681	259
6.....	108	739	38	38	90	274	1,147	281	200	2,402	893	359
7.....	96	672	35	35	90	230	1,078	266	176	2,720	918	437
8.....	84	350	35	32	84	226	1,107	281	212	2,325	905	546
9.....	101	381	35	32	79	192	925	252	311	2,010	1,048	446
10.....	140	256	35	32	74	205	848	224	327	1,314	1,370	446
11.....	128	155	32	32	69	192	978	224	414	918	1,234	610
12.....	101	114	*32	29	69	205	964	212	1,031	681	1,170	1,490
13.....	84	92	32	29	64	192	756	212	849	595	1,170	2,080
14.....	124	81	32	29	64	179	3,052	212	638	570	1,100	1,860
15.....	101	74	55	29	64	205	3,472	212	560	561	963	1,688
16.....	74	69	90	29	64	429	2,760	212	538	502	893	1,426
17.....	69	69	81	29	59	432	2,020	224	548	458	875	983
18.....	69	64	61	26	59	284	1,538	200	638	378	833	755
19.....	64	64	53	29	59	220	1,236	164	502	378	737	523
20.....	64	59	47	*644	55	252	1,032	*134	432	468	698	367
21.....	64	*59	44	308	55	220	899	124	406	857	630	265
22.....	59	55	41	179	51	393	880	107	360	1,210	580	231
23.....	59	55	41	114	51	1,620	848	83	*471	1,114	681	217
24.....	55	64	41	90	1,107	1,251	700	107	1,234	1,068	681	231
25.....	51	59	41	81	575	996	606	200	1,370	833	610	245
26.....	912	55	38	74	359	821	526	395	1,266	670	532	209
27.....	5,230	51	38	69	280	630	463	1,640	1,625	690	489	1,330
28.....	3,768	49	38	64	244	655	450	1,007	*6,380	580	561	698
29.....	2,844	51	39	59	205	555	450	.....	5,730	502	785	446
30.....	2,000	51	64	55	1,335	445	540	.....	3,725	458	*815	437
31.....	848	47	.....	55	.....	368	517	.....	2,468	.....	681	.....
Mean....	583	247	45	79	186	467	1,032	314	1,099	1,289	800	675

* Meter measurement. r New rating curve in effect, beginning March 23.

NOTE.—Ice conditions prevailed, December 17 to January 7, inclusive, and February 1 to March 27, inclusive.

Monthly discharge of ESOPUS CREEK AT MOUNT MARION, for the year ended June 30, 1917

[Drainage area, see station description]

MONTH	DISCHARGE IN SECOND-FEET		
	Maximum	Minimum	Mean
July.....	5,230	51	583
August.....	798	47	247
September.....	90	32	45
October.....	644	26	79
November.....	1,335	51	186
December.....	1,620	179	467
January.....	3,472	316	1,032
February.....	1,640	83	314
March.....	6,380	176	1,099
April.....	3,950	378	1,289
May.....	1,370	489	800
June.....	2,080	209	675
The year*.....	6,380	26	570

* Computed by State Engineer.

RONDOUT CREEK

DESCRIPTION

Rondout creek has its source in the heart of the timber-covered mountain group forming Wittenberg chain. It flows southeasterly to Napanoch, where it encounters the foot of Shawangunk range, turns abruptly to the northeast and enters the Hudson river at Rondout. Its watershed on the south is very restricted, as it is separated from the Wallkill river by only the narrow Shawangunk ridge. Notable waterfalls occur at Honk falls and Napanoch over Hudson river shale, and on Good Beer kill above Ellenville. At Honk falls a natural declivity afforded a fall of 125 feet, which has been increased to 147.5 feet by the construction of a masonry dam at the head of the gorge. On Good Beer kill there is a total fall of 870 feet from the Cape, 3 miles above Ellenville, to Ellenville. Of this about 200 feet are concentrated in a series of cascades, called Hanging Rock falls.

Water-power was originally developed at Napanoch in 1754. There is in this village a total fall of 115 feet. A series of cascades, involving a descent of about 50 feet, occurs at High Falls, where the water flows over Rosendale cement rock.

Drainage areas of RONDOUT CREEK *

(From U. S. G. S. topographic maps)

LIMITS	AREA IN SQUARE MILES	
	Place to place	Total
Source to Lackawack dam site, at Lackawack.....	94.73	94.73
Lackawack dam site to Lackawack gage, at Wilbur's bridge.....	5.63	100.36
Lackawack gage to Honk falls, about 1 mile above Napanoch.....	1.68	102.04
Honk falls to Alligerville, at highway bridge (including Vernoooy).....	243.78	345.82
Alligerville to High Falls, at High Falls dam.....	19.31	365.13
High Falls to Rosendale, at highway bridge.....	21.17	386.30

* This table is the result of a joint determination of drainage areas, based on independent computations by the Engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

RONDOUT CREEK AT LACKAWACK

Location.—At highway bridge, known as Wilbur's bridge, about 3 miles from Lackawack on road to Napanoch (reached by Ontario and Western railroad from Kingston to Napanoch and then a distance of 4 miles by Grahamsville stage).

Drainage area.—100 square miles,* determined from U. S. G. S. topographic maps and by special survey of part of watershed line by Board of Water Supply. (1910–1912, inclusive, drainage area considered 104 square miles, based on incomplete data.)

Records available.—May 1, 1910, to June 30, 1917. (Honk falls† records available, February 13, 1906, to April 30, 1910, inclusive.)

Gage.—Standard Board of Water Supply chain gage and Friez automatic stage register, read twice daily.

Discharge measurements.—At high stages, from highway bridge. At low stages, by wading at a point about a mile below Wilbur's bridge, where bottom is gravelly.

Control.—Sandy bottom from Sta. 0 to 45. Station 45 to 85 strewn with boulders. Section apparently permanent. Clear span, 85 feet. Channel above station straight for about 3,000 feet; water swift. Channel below station straight for about 1,000 feet; water swift. Right bank high, wooded. Left bank high, clean.

Extremes of discharge.—Current year: Maximum stage recorded, 9.85 feet on July 26 at 2:00 p. m.; discharge, 11,450 second-feet. Minimum stage recorded, 2.35 feet on September 13 and 14; discharge, 85 second-feet.

1910–1917: Maximum stage recorded, 10.40 feet on November 9, 1913, at 7:30 p. m.; discharge, 14,000 second-feet. Minimum stage recorded, 2.07 feet on October 8, 1914; discharge, 14 second-feet.

Winter flow.—Discharge relation seriously affected by ice when channel is completely frozen over. Flow determined by meter measurements and climatological data.

Accuracy.—Discharge rating curve well defined.

Coöperation.—Established and maintained by Board of Water Supply of the city of New York. Climatological observations are made at this station.

Emendation.—Report of State Engineer for 1915, Vol. II, page 347, daily discharge, October 31, 1914, should read 82.

* The 100 square miles used above is checked by the result of a joint determination of drainage areas, based on independent computations by engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

† Honk falls is a short distance below this station.

Daily discharge, in second-feet, of RONDOUT CREEK AT LACKAWACK, for the year ended June 30, 1917. Frank J. Thonemann, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	121	216	52	60	105	390	180	204	199	1,408	261	126
2.....	118	194	56	56	108	312	180	192	172	1,007	278	130
3.....	123	178	52	47	92	279	180	168	152	1,256	232	130
4.....	120	164	50	49	84	242	164	143	138	802	208	120
5.....	110	158	40	42	105	214	214	125	125	645	304	123
6.....	103	152	74	47	127	188	370	108	116	626	304	172
7.....	95	147	73	49	110	170	256	89	108	621	261	273
8.....	87	138	54	42	102	168	216	98	192	488	287	202
9.....	94	148	41	45	97	186	204	84	r 377	435	310	172
10.....	114	129	37	40	98	180	192	73	145	367	264	170
11.....	108	125	36	39	95	164	*174	65	176	326	240	363
12.....	98	123	36	39	89	166	e 164	59	439	333	225	880
13.....	105	120	35	44	90	164	164	84	360	340	222	539
14.....	134	114	*35	60	95	156	555	52	298	304	204	506
15.....	95	105	398	59	98	145	418	50	240	287	186	484
16.....	82	100	245	56	98	154	312	50	256	264	180	310
17.....	110	92	123	42	92	185	259	50	278	248	178	240
18.....	125	89	95	39	86	194	253	53	267	253	168	206
19.....	94	89	84	111	87	205	234	52	222	304	161	195
20.....	81	78	73	414	87	223	211	60	206	374	152	176
21.....	78	76	68	221	82	238	202	52	213	381	145	156
22.....	66	68	66	172	81	502	202	45	248	360	140	145
23.....	194	62	68	143	127	394	182	42	333	304	130	134
24.....	113	59	92	129	426	262	172	52	1,056	267	*125	165
25.....	111	59	70	121	221	218	174	44	958	235	123	136
26.....	4,344	66	62	114	183	178	166	134	1,056	222	120	125
27.....	2,028	138	54	103	176	216	180	410	1,758	217	120	423
28.....	804	37	50	*94	163	214	234	*235	1,908	197	131	199
29.....	414	86	52	86	166	197	216	.....	1,084	174	163	195
30.....	327	68	76	86	545	186	228	.....	820	215	167	195
31.....	270	57	.....	84	.....	178	228	.....	700	.....	134	.....
Mean...	350	112	78	88	138	222	228	103	471	442	198	245

* Meter measurement. e Estimated. r New rating curve in effect, beginning March 9.
NOTE.— Ice conditions, February 3 to March 8, inclusive.

Monthly discharge of RONDOUT CREEK AT LACKAWACK, for the year ended June 30, 1917

[Drainage area, 100 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	4,344	66	350	3.50	4.037
August.....	216	57	112	1.12	1.294
September.....	398	35	78	0.78	0.871
October.....	414	39	88	0.88	1.016
November.....	545	81	138	1.38	1.528
December.....	502	145	222	2.22	2.554
January.....	555	154	228	2.28	2.639
February.....	410	42	103	1.03	1.073
March.....	1,908	108	471	4.71	5.430
April.....	1,408	174	442	4.42	4.981
May.....	310	120	198	1.98	2.283
June.....	860	130	245	2.45	2.733
The year*.....	4,344	35	224	2.24	20.379

* Computed by State Engineer.

RONDOUT CREEK AT ROSENDALE

Location.—Rosendale highway bridge, downstream side. Reached by Wallkill Valley railroad from Kingston.

Drainage area.—386 square miles,* determined from U. S. G. S. topographic maps and by special survey of part of watershed line by Board of Water Supply. (1907 to 1912, inclusive, area considered 380 square miles, based on government records for year 1903.)

Records available.—January 1, 1907, to June 30, 1916.†

Gage.—Standard Board of Water Supply chain gage, read twice daily.

Discharge measurements.—At high stages, from highway bridge. At low stages, by wading at point about 1 mile below bridge, where river bed is gravelly.

Control.—River bed smooth, ledge-rock bottom. Clear span of 136 feet. Channel above and below station straight for about 300 feet. Banks high, rocky and slightly wooded, not liable to overflow.

Extremes of discharge.—Current year: Maximum stage recorded, 15.95 feet on July 27 at 7:30 A. M.; discharge, 14,000 second-feet. Minimum stage recorded, 5.90 feet on October 17; discharge, 40 second-feet.

1907–1917: Maximum stage recorded, 18.57 feet on April 26, 1910, at 4:30 P. M.; discharge, 21,600 second-feet. Minimum stage recorded, 5.77 feet on August 30 and September 1 to 3, 1907; discharge, 20 second-feet.

Winter flow.—Discharge relation seriously affected by ice. Flow determined by meter measurements and climatological data.

Diversion.—The Delaware and Hudson canal, which is abandoned above High Falls, draws its supply of water from the natural flow of Rondout creek at a point above Rosendale. A 3-foot staff gage is read at Rock Locks when water of Delaware and Hudson canal is discharged through rock channel, 3.4 feet wide, formed by masonry wall of lock near entrance and left bank wall. Stop-planks are placed to form weir, and discharge is com-

* The 386 square miles used above is checked by the result of a joint determination of drainage areas, based on independent computations by the engineers of the Board of Water Supply of the city of New York and of the Department of State Engineer.

† Established July 6, 1901, by the United States Geological Survey in cooperation with the New York City Water Supply Departments and taken over by the Board of Water Supply, June 1, 1907.

puted by weir formula and added to Rosendale bridge discharge for final record. From time to time measurements are made to check weir discharge. Canal is operated only during summer months, on a small scale.

Regulation.—At Honk falls dam, above Napanoch, and at High Falls, where power-houses are located, operations affect the natural flow of the creek.

Accuracy.—Discharge rating curve fairly well defined.

Coöperation.—Maintained by Board of Water Supply of the city of New York. Climatological observations are made at this station.

Emendation.—Report of State Engineer for 1915, Vol. II, page 350, daily discharge, January 31, 1915, should read 634.

Daily discharge, in second-feet, of **ROUND CREEK AT ROSENDALE**, for the year ended June 30, 1917. Edward J. Mullen, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	383	797	169	181	242	1,470	590	715	1,035	2,588	585	435
2.....	264	631	178	147	291	995	545	617	891	2,298	898	425
3.....	275	538	119	155	270	763	608	518	789	1,990	585	394
4.....	292	650	119	167	264	715	572	455	635	1,859	552	312
5.....	275	402	82	139	299	651	755	375	545	1,481	1,092	293
6.....	274	356	172	147	439	651	1,282	333	500	1,670	1,461	606
7.....	253	323	176	127	347	563	883	305	455	2,210	1,124	722
8.....	286	337	180	155	277	590	755	854	795	1,630	1,049	713
9.....	238	358	158	117	305	473	707	312	1,300	1,481	1,004	546
10.....	340	307	122	120	264	606	697	277	509	1,274	887	465
11.....	312	292	96	104	284	556	599	262	625	1,199	781	676
12.....	274	292	101	104	232	809	563	226	1,740	1,012	669	1,922
13.....	291	250	*110	104	242	627	527	216	1,440	976	636	1,301
14.....	405	236	100	80	253	541	1,905	205	1,210	903	619	1,018
15.....	333	209	195	80	242	503	1,440	300	955	812	476	1,356
16.....	238	169	1,556	95	284	534	1,075	195	1,011	766	436	948
17.....	290	171	540	48	242	642	915	199	1,099	738	438	727
18.....	383	163	327	190	264	673	819	226	1,051	678	461	423
19.....	264	199	273	110	282	711	739	199	891	986	416	569
20.....	236	158	237	2,521	181	774	*667	242	835	781	385	522
21.....	218	*126	246	885	221	826	626	216	859	819	356	460
22.....	234	156	220	545	200	1,742	715	190	979	751	322	891
23.....	389	158	195	391	253	1,368	675	167	1,220	686	379	357
24.....	307	112	194	319	1,090	910	635	190	3,024	619	324	344
25.....	258	138	193	806	827	757	608	767	3,804	530	295	343
26.....	5,325	149	198	291	953	618	861	508	3,762	484	*270	306
27.....	10,082	571	184	270	491	750	554	1,490	4,142	484	243	1,227
28.....	4,368	897	170	253	491	763	545	1,210	6,620	431	836	924
29.....	2,123	339	143	216	455	684	545	.....	3,700	416	752	525
30.....	1,238	252	150	216	1,629	645	486	.....	2,090	442	684	490
31.....	998	206	.....	242	.....	618	590	.....	2,158	.....	488	.....
Mean...	1,007	297	230	283	408	745	752	376	1,650	1,087	612	865

* Meter measurement. * Estimated. r New rating curve in effect, beginning March 28.

NOTE.—Includes flow of D. & H. canal from July 1 to September 30 and May 1 to June 30, inclusive. Ice conditions, December 14 to March 22, inclusive.

Monthly discharge of RONDOUT CREEK AT ROSENDALE, for the year ended June 30
1917

[Drainage area, 386 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July	10,662	218	1,007	2.61	3.804
August	797	112	297	0.77	0.883
September	1,556	82	220	0.60	0.665
October	2,321	68	283	0.73	0.845
November	1,690	181	498	1.06	1.174
December	1,742	473	745	1.93	2.229
January	1,905	527	752	1.95	2.246
February	1,490	187	376	0.974	1.014
March	6,620	455	1,650	4.27	4.927
April	2,598	416	1,087	2.82	3.142
May	1,481	243	613	1.59	1.831
June	1,922	292	665	1.72	1.922
The year*	10,062	68	679	1.76	23.882

Computed by State Engineer.

DELAWARE RIVER DRAINAGE BASIN**DELAWARE RIVER****DESCRIPTION**

The headwaters of Delaware river are found in Delaware, Greene and Schoharie counties, N. Y. The East branch, which may be considered the main stream, rises at Grand Gorge in north-eastern Delaware county; the West branch has its source in a small lake almost on the line of Schoharie and Delaware counties, at an elevation of 1,886 feet above sea-level; the two streams unite at Hancock, forming what is referred to as the Delaware river, while above this point the two branches are designated as East or West branch, Delaware river. From this junction point the river flows southeastward until it reaches Port Jervis, where it turns to the southwest and flows for a distance of about 40 miles along the base of the Shawangunk range until it passes through the water gap, from which point it flows in an irregular southerly direction to Trenton. Below Trenton its course is in general southwestward to Delaware bay. Between Hancock and Port Jervis it forms the dividing line between New York and Pennsylvania, south of Port Jervis it separates Pennsylvania from New Jersey and, for a few miles, Delaware from New Jersey.

The drainage area of Delaware river, measured at Philadelphia and including that of Schuylkill river, is about 10,100 square miles, of which about 2,580 square miles lie in New York, 5,720 in Pennsylvania, and 1,800 in New Jersey. The river is tidal to Trenton, which lies also at the head of navigation.

The Delaware receives a number of important tributaries, among which may be mentioned Mongaup and Neversink rivers and Callicoon creek from New York; Lackawaxen, Lehigh and Schuylkill rivers and numerous creeks from Pennsylvania; and Rancocas creek, Musconetcong river and Maurice river from New Jersey.

EAST BRANCH OF DELAWARE RIVER AT FISH EDDY

Location.—At the railway bridge in the village of Fish Eddy, Delaware county, about 4 miles below the mouth of Beaver kill and $5\frac{1}{2}$ miles above the confluence of East and West branches.

Drainage area.—790 square miles. (Measured on post-route map.)

Records available.—November 19, 1912, to June 30, 1917. Records were obtained at Hancock, about 4 miles below, from October 14, 1902, to December 31, 1912.

Gage.—Staff, in two sections on downstream end of left pier of railroad bridge. Read by J. P. Lyons.

Discharge measurements.—Made from the highway bridge about 200 feet above the gage or by wading.

Channel and control.—Coarse gravel; occasionally shifting.

Extremes of discharge.—Current year: Maximum stage recorded, 12.3 feet at 8 A. M., March 28; discharge, approximately 18,100 second-feet. Minimum stage recorded, 1.90 feet, September 13 and 14; discharge, 198 second-feet.

1912–1917: Maximum stage, 17.4 feet during the afternoon of March 27, 1913, determined by leveling from flood-marks; approximate discharge, 33,500 second-feet. Minimum stage recorded, 1.64 feet at 5 P. M., October 12, 14 and 15, 1914; discharge, 97 second-feet.

Ice.—Stage-discharge relation seriously affected by ice.

Accuracy.—Stage-discharge relation apparently permanent except for two or three months immediately following the spring flood. Affected by ice during a large part of the period from December to March, inclusive. Rating curve well defined between 200 and 20,000 second-feet. Gage read to hundredths twice daily from July 1 to December 31 and to tenths once daily from January 1 to June 30. Daily discharge ascertained by applying mean daily gage height to rating table. Results good except for periods when the stage-discharge relation was affected by ice, when results were fair.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the U. S. Weather Bureau and the State Engineer and Surveyor.

**Discharge measurements of EAST BRANCH OF DELAWARE RIVER AT FISH EDDY
during the year ended June 30, 1917**

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 22 a.....	E. D. Burchard.....	2.21	306
Sept. 22 a.....	E. D. Burchard.....	2.21	202
Sept. 26 a.....	E. D. Burchard.....	2.14	276
Dec. 27 b.....	E. D. Burchard.....	4.01	1,300
Jan. 24 c.....	E. D. Burchard.....	6.06	798
Feb. 15 c.....	E. D. Burchard.....	5.97	223
Mar. 30 c.....	E. D. Burchard.....	5.73	960
Mar. 28.....	E. D. Burchard.....	11.48	15,900
Mar. 28.....	E. D. Burchard.....	10.68	18,400

a Measurement made by wading.

b Measurement made under partial ice cover.

c Measurement made under complete ice cover.

**Daily discharge, in second-feet, of EAST BRANCH OF DELAWARE RIVER AT FISH EDDY
for the year ended June 30, 1917**

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,000	1,410	408	300	408	3,050	950	440	2,400	5,260	1,690	1,500
2.....	650	1,040	362	281	490	2,320	900	400	2,200	14,000	1,500	1,890
3.....	1,890	815	300	262	455	2,000	800	380	1,800	11,800	1,320	1,690
4.....	1,410	885	349	245	480	1,700	750	380	1,000	8,180	1,220	1,560
5.....	1,880	680	328	228	500	1,400	700	390	1,000	5,200	1,320	1,500
6.....	920	590	262	228	500	1,200	800	380	700	5,260	2,350	1,500
7.....	710	560	262	228	530	1,000	900	440	700	5,440	2,670	3,610
8.....	1,410	530	320	328	480	900	1,000	500	500	5,900	2,670	8,910
9.....	2,210	920	262	228	480	900	1,200	550	900	5,080	2,670	4,230
10.....	2,300	1,160	245	228	480	1,100	1,200	550	1,180	4,900	2,550	5,440
11.....	1,240	885	228	228	480	900	1,100	480	1,000	4,780	2,320	11,800
12.....	1,855	680	213	228	480	800	1,100	380	4,200	4,000	1,900	9,040
13.....	1,690	590	198	245	480	750	1,200	380	3,600	3,610	1,500	8,300
14.....	4,230	530	198	300	480	700	1,600	340	3,800	8,320	1,600	7,560
15.....	2,100	480	680	300	455	650	4,800	300	3,600	2,320	1,500	6,570
16.....	1,690	430	1,320	300	455	600	2,800	340	3,200	1,990	1,500	5,260
17.....	1,500	430	710	390	455	550	2,400	380	2,500	1,790	1,160	3,320
18.....	1,320	385	650	245	490	500	1,000	800	2,480	1,690	1,180	2,550
19.....	1,160	385	530	245	430	480	1,500	220	2,280	2,100	1,000	2,320
20.....	920	340	480	455	480	480	1,800	300	2,000	3,610	1,080	2,320
21.....	710	300	300	1,300	430	480	1,200	200	2,200	3,280	4,500	2,100
22.....	710	300	300	1,160	430	650	1,000	140	2,200	3,050	1,000	1,900
23.....	710	300	300	850	455	4,000	800	120	2,000	3,060	920	2,190
24.....	620	430	281	815	2,430	2,600	800	95	1,800	2,320	800	2,100
25.....	530	408	245	780	1,590	1,700	700	95	3,000	2,100	750	4,790
26.....	3,320	300	245	620	1,410	1,300	650	120	5,000	1,890	780	8,180
27.....	5,260	650	228	530	1,260	1,800	600	550	9,200	1,790	580	8,000
28.....	3,910	650	228	480	1,080	1,200	550	2,600	18,100	1,500	780	4,070
29.....	2,180	600	228	480	4,060	1,000	500	.....	8,600	1,320	1,600	2,700
30.....	1,990	530	300	430	3,760	800	500	.....	4,730	1,320	1,320	3,320
31.....	1,890	680	.....	480	.....	650	480	.....	9,260	.....	1,250	.....
Mean.....	1,670	602	263	432	780	1,210	1,190	416	3,360	4,070	1,480	4,050

NOTE.— Discharge, December 3 to 22 and December 25 to March 26, inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage height graph and comparison with similar studies for near-by stations.

Monthly discharge of EAST BRANCH OF DELAWARE RIVER AT FISH EDDY, for the
year ended June 30, 1917
[Drainage area, 790 square miles]

Month	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	5,260	530	1,670	2.11	2.43
August.....	1,410	300	602	0.762	0.88
September.....	1,320	213	363	0.459	0.51
October.....	1,500	228	432	0.547	0.63
November.....	3,760	408	780	0.987	1.10
December.....	4,000	430	1,210	1.53	1.76
January.....	4,800	460	1,190	1.51	1.74
February.....	2,600	95	416	0.526	0.55
March.....	18,100	600	3,360	4.25	4.90
April.....	14,080	1,320	4,070	5.16	5.75
May.....	2,670	780	1,480	1.87	2.16
June.....	11,800	1,500	4,050	5.13	5.72
The year.....	18,100	95	1,640	2.08	28.13

DELAWARE RIVER AT PORT JERVIS

Location.—At the toll bridge at Port Jervis, Orange county, 1 mile above Neversink river and 6 miles below Mongaup river.

Drainage area.—3,250 square miles.

Records available.—October 12, 1904, to June 30, 1917.

Gage.—Staff, in two sections, the lower section inclined, about 30 feet downstream, the upper section vertical and attached to downstream end of left abutment. Prior to June 20, 1914, a chain gage on the bridge was used. Gage read by Mrs. Bella Fuller.

Discharge measurements.—Made from the highway bridge or by wading.

Channel and control.—Gravel; occasionally shifting.

Extremes of discharge.—Current year: Maximum stage recorded, 11.3 feet at 8 A. M., March 28; discharge, 53,400 second-feet. Minimum stage recorded, 1.69 feet at 8 A. M., September 13; discharge, 870 second-feet.

1904-1917: Maximum stage recorded, 16.0 feet at 8 A. M., March 28, 1914; discharge, 92,700 second-feet. Minimum stage recorded, 0.60 foot at 8 A. M., September 22 and 23, 1908; discharge, 175 second-feet.

Ice.— Stage-discharge relation somewhat affected by ice.

Accuracy.— Stage-discharge relation practically permanent between dates of shifting; affected by ice during large part of January and February. Rating curve well defined between 1,000 and 8,000 second-feet. Probably coincides with other well-defined curves outside these limits. Gage read to hundredths twice daily from July 1 to December 31 and to tenths, January 1 to June 30. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good for periods when the stage-discharge relation is not affected by ice and fairly good for other periods.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the U. S. Weather Bureau and the State Engineer and Surveyor.

Discharge measurements of DELAWARE RIVER AT PORT JERVIS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 24	E. D. Burchard	2.09	1,380
Sept. 25	E. D. Burchard	2.57	2,200
Sept. 25	E. D. Burchard	2.52	2,100
Sept. 25	E. D. Burchard	2.46	2,010
Feb. 16 a	E. D. Burchard	5.28	1,490
Mar. 11 a	E. D. Burchard	6.13	3,840
Mar. 30	E. D. Burchard	7.92	26,000

a Measurement made through complete ice cover.

Daily discharge, in second-feet, of DELAWARE RIVER AT PORT JERVIS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	3,650	5,050	1,800	1,720	1,720	12,100	3,650	1,900	12,000	23,200	4,480	5,680
2.....	3,180	4,180	1,470	2,070	1,720	9,010	3,650	3,200	15,000	27,500	4,180	6,010
3.....	3,180	3,650	1,240	1,890	1,800	6,700	3,650	4,200	6,500	24,600	5,360	6,700
4.....	3,650	3,180	1,110	1,890	1,890	6,010	3,910	3,000	4,800	23,900	5,050	6,350
5.....	3,400	2,690	1,110	1,470	1,890	5,050	3,910	1,900	4,600	17,400	4,750	6,010
6.....	3,180	2,470	1,110	1,240	1,720	5,050	6,010	1,200	6,000	14,600	5,050	5,680
7.....	2,690	2,260	1,240	1,720	1,720	4,460	8,200	1,400	4,000	17,400	5,360	7,060
8.....	2,260	2,070	1,110	1,240	2,070	3,910	7,430	1,700	4,000	14,100	4,460	13,600
9.....	2,690	2,260	1,110	1,110	1,720	3,650	6,010	2,600	4,000	13,600	8,200	13,100
10.....	3,400	2,690	1,110	1,110	1,720	4,180	6,010	1,900	4,600	11,200	7,810	10,700
11.....	3,910	2,920	1,050	990	1,800	4,180	5,360	2,400	4,200	9,010	7,430	9,420
12.....	4,460	2,470	935	880	2,260	3,910	4,180	1,900	4,600	8,200	7,060	32,700
13.....	4,750	2,470	880	935	2,070	3,400	3,400	1,700	11,000	7,810	6,350	25,300
14.....	6,700	2,070	990	990	1,720	3,180	5,680	1,600	26,000	7,060	5,050	16,800
15.....	9,010	1,890	1,800	1,110	1,720	3,180	36,600	1,600	29,700	6,700	4,750	16,800
16.....	5,360	1,720	4,750	1,180	1,720	2,690	21,800	1,700	23,900	6,700	4,750	13,100
17.....	4,460	1,550	4,460	1,240	1,800	2,690	14,600	1,600	20,500	6,010	4,460	11,200
18.....	4,180	1,550	3,180	1,110	1,640	2,260	9,420	1,600	15,100	5,360	4,460	9,840
19.....	3,650	1,390	2,470	1,050	1,640	2,260	6,010	1,400	13,600	5,050	3,910	9,840
20.....	3,160	1,240	1,800	4,750	1,550	2,920	5,000	1,200	10,700	5,680	6,350	9,010
21.....	2,690	1,110	1,640	3,650	1,550	3,160	4,600	1,400	9,840	7,050	3,400	7,430
22.....	2,260	1,110	1,640	5,360	1,390	4,460	4,200	1,200	10,700	7,430	3,160	8,200
23.....	2,260	1,050	1,390	4,180	1,390	6,360	4,000	1,000	9,840	7,810	3,160	7,060
24.....	2,470	990	1,470	3,400	1,550	8,200	3,400	1,200	14,100	6,010	3,400	7,810
25.....	2,260	1,110	2,260	2,070	2,070	7,430	3,200	1,100	45,200	5,360	2,920	7,060
26.....	12,100	1,390	1,800	2,470	3,910	5,360	2,800	1,400	33,500	5,050	2,920	6,010
27.....	22,600	2,260	1,720	2,260	3,160	5,050	2,600	1,700	37,800	5,050	2,690	6,010
28.....	16,200	1,800	1,390	2,070	2,690	4,750	2,400	7,500	53,400	4,460	3,160	15,100
29.....	10,700	2,070	1,390	1,980	3,400	4,750	2,200	.....	38,900	3,910	3,650	10,700
30.....	7,430	2,260	1,720	1,720	3,910	3,910	2,000	.....	26,000	3,650	7,430	11,200
31.....	6,010	2,070	.....	1,720	.....	3,650	1,900	.....	20,500	.....	6,350	.....
Mean...	5,410	2,160	1,700	1,980	2,030	4,740	6,380	2,010	16,900	10,400	4,800	10,700

NOTE.— Discharge, January 20 to March 14, inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage height graph and comparison with similar studies for stations upstream.

Monthly discharge of DELAWARE RIVER AT PORT JERVIS, for the year ended June 30 1917

[Drainage area, 3,250 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	22,500	2,260	5,410	1.66	1.91
August.....	5,050	990	2,160	0.665	0.77
September.....	4,750	880	1,700	0.523	0.58
October.....	5,360	880	1,980	0.610	0.70
November.....	3,910	1,390	2,030	0.625	0.70
December.....	12,100	2,260	4,740	1.46	1.68
January.....	36,500	1,900	6,380	1.96	2.26
February.....	7,500	1,000	2,010	0.618	0.64
March.....	53,400	4,000	16,900	5.20	6.00
April.....	27,500	3,650	10,400	3.20	3.57
May.....	8,200	2,690	4,800	1.48	1.71
June.....	32,700	5,680	10,700	3.29	3.67
The year.....	53,400	880	5,790	1.78	24.19

BEAVER KILL

BEAVER KILL AT COOKS FALLS

Location.— At the covered highway bridge in Cooks Falls, Delaware county.

Drainage area.— 236 square miles. (Measured on post-route and U. S. G. S. topographic maps.)

Records available.— July 25, 1913, to June 30, 1917.

Gage.— Vertical staff in two sections bolted to rock on left bank under the bridge. Read by J. L. Rosa.

Discharge measurements.— Made from the bridge or by wading a short distance downstream.

Channel and control.— Coarse gravel, boulders and solid ledge, practically permanent.

Extremes of discharge.— Current year: Maximum stage determined from water-marks on gage, 11.0 feet, some time during the night of March 27–28; discharge, approximately 7,870 second-feet. Minimum stage recorded, 0.70 foot from 7 A. M., October 12, to 7 A. M., October 13; discharge, 30 second-feet.

1913–1917: Maximum stage determined from water-marks on gage, 11.0 feet, some time during the night of March 27–28, 1917; discharge, approximately 7,870 second-feet. Minimum stage recorded, 0.70 foot from 7 A. M., October 12, to 7 A. M., October 13, 1916; discharge, 30 second-feet.

Ice.— Stage-discharge relation somewhat affected by ice.

Accuracy.— Stage-discharge relation practically permanent; affected by ice during portions of the period from December to March, inclusive. Rating curve well defined between 50 and 4,500 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good for periods when the stage-discharge is not affected by ice; fair for other periods.

Coöperation.— Gaging station established and maintained by the United States Geological Survey in coöperation with the State Engineer and Surveyor.

Discharge measurements of BEAVER KILL AT COOKS FALLS, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 22 a.....	E. D. Burchard.....	1.21	106
Sept. 28 a.....	E. D. Burchard.....	1.22	103
Sept. 28 a.....	E. D. Burchard.....	1.24	104
Jan. 24 b.....	E. D. Burchard.....	2.03	257
Feb. 15 c.....	E. D. Burchard.....	4.04	147
Mar. 10 c.....	E. D. Burchard.....	2.85	317
Mar. 29.....	E. D. Burchard.....	6.00	2,570

a Measurement made by wading.

b Measurement made through partial ice cover.

c Measurement made through complete ice cover.

Daily discharge, in second-feet, of BEAVER KILL AT COOKS FALLS, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	323	490	114	132	158	1,150	323	260	750	3,950	735	490
2.....	323	421	94	90	125	1,040	278	190	440	4,550	735	455
3.....	735	271	80	76	90	830	249	190	240	3,310	645	455
4.....	525	355	69	64	73	790	323	150	280	2,720	830	387
5.....	455	308	61	59	170	735	421	140	400	2,240	930	880
6.....	355	293	278	49	222	690	780	130	300	2,020	880	1,590
7.....	339	293	182	47	182	565	685	180	309	1,800	830	1,040
8.....	293	404	132	41	170	490	490	150	400	1,330	830	830
9.....	308	308	104	39	154	490	421	240	340	1,150	830	880
10.....	490	278	80	34	263	490	421	260	300	930	735	780
11.....	371	263	61	32	222	421	308	220	300	880	645	1,460
12.....	355	263	49	30	182	404	278	170	650	980	605	3,220
13.....	490	285	55	34	158	387	235	190	790	1,040	565	1,660
14.....	525	208	61	158	158	371	1,520	150	650	930	525	1,300
15.....	428	158	428	132	154	828	1,350	140	550	890	499	1,040
16.....	387	147	565	98	136	280	790	110	490	785	490	1,520
17.....	355	136	235	118	125	240	565	90	420	735	490	1,210
18.....	355	118	208	68	114	260	490	80	490	890	404	980
19.....	323	114	132	76	147	180	400	75	380	1,210	371	780
20.....	323	110	110	830	136	170	360	90	387	1,500	355	645
21.....	308	104	90	785	136	182	320	75	490	1,460	339	690
22.....	308	85	85	565	158	565	890	90	455	1,330	839	455
23.....	308	80	98	355	1,040	830	300	110	605	1,040	323	565
24.....	371	158	125	278	2,480	565	260	220	2,400	880	308	455
25.....	293	195	94	235	1,040	404	320	260	2,160	735	293	387
26.....	3,760	355	90	208	780	421	300	320	3,140	645	263	421
27.....	2,490	278	73	582	645	455	260	890	4,150	645	222	1,940
28.....	1,210	235	73	182	605	421	240	1,300	4,650	605	355	1,390
29.....	880	208	90	140	1,040	387	260	.....	2,560	565	735	880
30.....	645	158	182	114	1,390	355	290	.....	1,940	645	565	1,150
31.....	525	136	.....	96	.....	323	220	.....	2,020	.....	525	.....
Mean....	621	234	137	171	415	489	436	228	1,070	1,410	558	1,000

NOTE.—Discharge, December 16 to 20 and January 19 to March 19, both inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage height graph and comparison with similar studies for near-by stations.

Monthly discharge of BRAVER KILL AT COOKS FALLS, for the year ended June 30, 1917

[Drainage area, 236 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July.....	3,760	293	621	2.63	3.03
August.....	490	80	234	0.99	1.14
September.....	565	50	137	0.58	0.65
October.....	830	30	171	0.725	0.84
November.....	2,480	73	415	1.78	1.96
December.....	1,150	170	489	2.07	2.39
January.....	1,520	220	436	1.85	2.13
February.....	1,300	75	228	0.966	1.01
March.....	4,650	240	1,070	4.54	5.23
April.....	4,550	565	1,410	5.97	6.66
May.....	930	263	558	2.36	2.72
June.....	3,220	387	1,000	4.24	4.73
The year.....	4,650	30	565	2.39	32.49

WEST BRANCH, DELAWARE RIVER

A brief description of the West branch, Delaware river, will be found in the description of the Delaware river.

WEST BRANCH OF DELAWARE RIVER AT HALE EDDY

Location.—At the highway bridge in the village of Hale Eddy, Delaware county, 8 miles below the power dam of the Deposit Electric Co., and 8¼ miles above junction with the East branch of Delaware river.

Drainage area.—611 square miles. (Measured on post-route map.)

Records available.—November 15, 1912, to June 30, 1917. Records were obtained at Hancock, about 7 miles below, from October 15, 1902, to December 31, 1912.

Gage.—Vertical staff in four sections, attached to rocks near the right abutment of the bridge and to the abutment. Gage read by William Seeley.

Discharge measurements.—Made from the cable about 400 feet below the gage installed in July, 1916. Previous measurements made from the highway bridge or by wading.

Channel and control.— Coarse gravel and boulders; practically permanent.

Extremes of discharge.— Current year: Maximum stage recorded, 10.7 feet at 8 A. M., March 28; discharge, 11,800 second-feet. Minimum stage recorded, 1.75 feet at 5 P. M., August 22; discharge, 118 second-feet.

1912–1917: Maximum stage recorded,* 15.3 feet at 5 P. M., March 27, 1913; discharge, approximately 25,000 second-feet. Minimum stage recorded, 1.0 foot at 6 P. M., September 21, 1913; discharge, 34 second-feet.

Ice.— Stage-discharge relation seriously affected by ice.

Accuracy.— Stage-discharge relation practically permanent. Rating curve well defined between 300 and 18,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good during periods when the stage-discharge relation is not affected by ice. Results fair for other periods.

Coöperation.— Station established and maintained by the United States Geological Survey in coöperation with the State Engineer and Surveyor.

* The observer states that on October 10, 1893, the water rose to an elevation indicated by a nail in a tree near the gage. This nail is at gage height 20.3 feet. No data available indicating whether the present rating is applicable to this gage height.

Discharge measurements of WEST BRANCH OF DELAWARE RIVER AT HALE EDDY, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 26 a.....	E. D. Burchard.....	2.63	429
Sept. 16 a.....	E. D. Burchard.....	3.69	1,040
Sept. 26.....	E. D. Burchard.....	2.84	520
Sept. 26.....	E. D. Burchard.....	2.87	546
Dec. 28 b.....	E. D. Burchard.....	4.08	992
Jan. 23 c.....	E. D. Burchard.....	9.10	829
Feb. 14 c.....	E. D. Burchard.....	6.40	202
Mar. 9 c.....	E. D. Burchard.....	6.40	736
Mar. 31.....	E. D. Burchard.....	5.90	3,090
Mar. 31.....	E. D. Burchard.....	5.88	3,060

a Measurement made by wading.

b Measurement made under partial ice cover.

c Measurement made under complete ice cover.

Daily discharge, in second-feet, of WEST BRANCH OF DELAWARE RIVER AT HALE EDDY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	470	552	240	720	365	2,620	480	440	1,900	4,280	785	1,330
2.....	395	420	220	480	480	2,050	480	380	1,100	7,240	720	1,260
3.....	370	880	200	410	388	1,780	550	320	700	6,590	730	1,090
4.....	370	260	182	388	855	1,690	500	100	550	5,680	720	1,510
5.....	370	200	182	325	368	1,600	500	110	480	3,140	1,000	1,160
6.....	325	220	185	205	505	1,220	2,900	140	360	3,030	1,870	1,430
7.....	240	240	152	232	432	1,160	2,400	200	480	3,740	1,870	4,580
8.....	240	165	552	215	358	1,000	1,700	220	420	2,620	1,960	5,300
9.....	240	220	260	215	345	925	1,800	800	700	2,720	2,420	4,000
10.....	1,140	280	200	185	455	1,330	1,400	260	850	1,370	1,960	3,080
11.....	552	700	200	200	505	925	950	170	850	1,600	1,870	4,000
12.....	420	420	152	170	422	700	850	160	2,900	1,490	1,490	4,180
13.....	2,240	370	138	170	410	600	1,100	110	4,200	1,900	1,510	4,140
14.....	3,010	280	165	305	410	500	2,400	200	2,600	1,510	1,420	2,250
15.....	1,600	260	825	825	565	460	3,600	95	2,000	1,350	1,160	3,250
16.....	1,280	152	1,000	250	455	880	2,800	120	1,600	1,160	925	2,620
17.....	1,000	200	580	215	432	340	2,400	70	1,900	1,160	1,000	2,320
18.....	1,440	182	420	235	388	380	2,000	70	2,000	1,000	785	1,870
19.....	760	152	348	232	388	300	1,700	95	1,700	925	720	2,230
20.....	580	138	302	285	455	800	1,500	90	1,600	1,240	720	1,690
21.....	498	138	240	1,510	432	360	1,300	85	1,900	1,160	605	2,420
22.....	420	115	200	1,330	422	440	1,100	65	2,000	1,490	405	1,690
23.....	420	165	2,510	855	285	1,200	900	65	3,400	1,240	805	1,420
24.....	325	200	860	790	1,510	1,300	700	200	7,500	1,160	565	1,600
25.....	280	260	640	605	1,330	1,300	600	85	6,010	1,000	305	1,330
26.....	420	165	498	580	785	1,000	500	160	6,180	855	580	1,160
27.....	1,660	182	445	505	720	960	260	1,100	8,000	855	505	5,580
28.....	1,140	498	370	455	855	900	180	3,600	10,500	780	600	3,080
29.....	880	760	420	410	1,000	650	300	.....	5,680	720	1,690	2,030
30.....	670	610	880	365	2,620	440	380	.....	4,000	720	1,870	2,320
31.....	640	348	.....	345	.....	380	420	.....	3,030	.....	1,420	.....
Mean...	779	216	436	426	628	989	1,210	318	2,790	2,120	1,140	2,700

NOTE.—Discharge, December 12 to March 24, inclusive, estimated, because of ice, from discharge measurements, weather records, study of gage height graph and comparison with similar studies for near-by stations.

Monthly discharge of WEST BRANCH OF DELAWARE RIVER AT HALE EDDY, for the year ended June 30, 1917
[Drainage area, 611 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	3,010	240	779	1.27	1.46
August.....	760	115	316	0.517	0.60
September.....	2,510	188	426	0.714	0.80
October.....	1,510	170	426	0.714	0.82
November.....	2,620	285	628	1.03	1.15
December.....	2,620	300	939	1.54	1.78
January.....	3,800	100	1,210	1.98	2.28
February.....	3,600	65	818	1.34	0.64
March.....	10,500	380	2,790	4.57	5.27
April.....	7,240	720	2,790	4.57	8.67
May.....	2,420	505	1,140	1.87	2.16
June.....	6,180	1,160	2,700	4.42	4.93
The year.....	10,500	65	1,130	1.85	25.66

SUSQUEHANNA RIVER DRAINAGE BASIN

DESCRIPTION

Susquehanna river rises in Otsego lake, in northern Otsego county, at an elevation of 1,193 feet above tide, and flows in a general southerly direction into Chesapeake bay. Its course is in many places extremely tortuous, crossing the State boundary between New York and Pennsylvania three times. The entire length of the river is about 500 miles and it drains an area of 27,400 square miles, of which 21,060 square miles lie in Pennsylvania, 6,080 in New York and 260 in Maryland.

Three important streams contribute to the flow in New York state—Unadilla, Chenango and Chemung rivers. These streams all enter from the north. Unadilla, the smallest, joins the main stream near Sidney, Chenango at Binghamton and Chemung at a point in Pennsylvania about 8 miles below the state line.

The topography of the basin varies widely in character. In New York the stream and its tributaries flow through a rolling and, in places, rather broken country, bounded on the north by a mountainous area. In this part of its course its bed is of gravel or sand, with rock ledges here and there, and its banks are moderately high and not extensively subject to overflow. In Pennsylvania the river enters a mountain region, its banks are high and it winds and twists among the parallel ranges in a bed composed generally of drift materials, gravels, sand and boulders. In the lower part of its course, from Marietta to Havre de Grace, it occupies a broad, deep valley, ranging in width from a few hundred feet to more than a mile, and is for the most part bounded on either shore by rocky bluffs and table-lands elevated from 100 to 500 feet above its waters.

SUSQUEHANNA RIVER**SUSQUEHANNA RIVER AT CONKLIN**

Location.—At the steel highway bridge, just below Conklin, Broome county, 5 miles below Big Snake creek and 8 miles above Chenango river.

Drainage area.—2,350 square miles.

Records available.—November 13, 1912, to June 30, 1917. Records were obtained at Binghamton, 8 miles below, from July 31, 1901, to December 31, 1912.

Gage.—Stevens water-stage recorder on left bank, just below the bridge, installed October 4, 1914. Prior to that date, staff in two sections, the lower section inclined, the upper vertical, attached to left abutment. Water-stage recorder inspected by Mrs. Cora Ames.

Discharge measurements.—Made from the bridge or by wading.

Channel and control.—Coarse gravel and boulders; probably permanent.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 13.55 feet at 3 A. M., March 28; discharge, 28,700 second-feet. Minimum stage from water-stage recorder, 2.48 feet, August 21, 23, 24 and 26; discharge, 518 second-feet.

1901–1917: Maximum stage recorded, 19.74 feet at the former station in Binghamton at 7:40 A. M., March 2, 1902; discharge, approximately 62,500 second-feet. Minimum stage recorded, 1.32 feet at 8:20 A. M. and 4 P. M., September 16, 1913; discharge, 106 second-feet.

Ice.—Stage-discharge relation affected by ice.

Accuracy.—Stage-discharge relation practically permanent; affected by ice for a large portion of the period from January to March, inclusive. Rating curve well defined between 250 and 55,000 second-feet. Operation of the water-stage recorder fairly satisfactory throughout year. Daily discharge ascertained by applying mean daily gage heights to rating table. Gage heights determined by inspecting gage height graph or by averaging hourly gage heights. Results good except for periods when the stage-discharge relation was affected by ice. Results fairly good for other periods.

Coöperation.—Station established and maintained by the United

States Geological Survey in cooperation with the State Engineer and Surveyor.

Discharge measurements of SUSQUEHANNA RIVER AT CONKLIN, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		Feet	Sec.-ft.
Sept. 15.....	E. D. Burchard.....	2.77	733
Oct. 3.....	E. D. Burchard.....	3.89	1,800
Dec. 28 a.....	E. D. Burchard.....	4.69	2,780
Jan. 20 b.....	E. D. Burchard.....	5.70	3,620
Feb. 13 b.....	E. D. Burchard.....	5.84	1,180
Mar. 6 b.....	E. D. Burchard.....	7.56	2,140
Mar. 9 b.....	E. D. Burchard.....	7.06	2,180
Mar. 31.....	E. D. Burchard.....	8.22	11,000
May 14.....	C. C. Covert.....	5.38	4,280
June 2.....	E. D. Burchard.....	5.99	5,300

a Measurement made under partial ice cover.

b Measurement made under complete ice cover.

Daily discharge, in second-feet, of SUSQUEHANNA RIVER AT CONKLIN, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,570	1,170	635	2,910	1,230	7,330	2,200	2,600	10,000	11,500	.....	4,740
2.....	1,350	1,050	558	2,230	1,400	6,400	1,800	2,400	7,000	13,400	.....	5,940
3.....	1,400	898	544	1,810	1,750	4,840	2,000	2,000	4,600	12,300	.....	5,060
4.....	1,350	842	530	1,570	1,520	4,140	2,200	1,800	2,600	14,300	.....	4,230
5.....	1,750	818	530	1,460	1,460	3,860	3,000	1,600	2,400	10,800	2,910	3,500
6.....	1,570	712	530	1,300	1,570	4,040	6,000	1,500	2,200	9,500	.....	3,240
7.....	1,400	726	530	1,170	1,940	3,950	7,500	1,400	2,200	11,000	.....	9,180
8.....	1,250	677	530	1,100	1,750	3,500	5,500	1,300	1,900	9,740	.....	10,000
9.....	1,250	663	798	1,020	1,570	2,990	4,200	1,400	2,200	8,040	.....	10,800
10.....	1,990	670	740	970	1,630	3,420	3,800	1,400	2,600	7,100	.....	8,760
11.....	1,940	677	670	930	1,880	3,860	3,800	1,300	2,800	5,940	.....	7,800
12.....	4,120	782	659	882	2,070	3,330	3,000	1,300	8,500	5,500	.....	10,800
13.....	6,000	747	659	826	1,890	2,990	1,800	1,200	12,000	5,500	4,530	12,800
14.....	5,790	677	706	946	1,750	2,800	2,200	1,100	12,000	5,280	4,230	10,200
15.....	5,500	621	796	1,090	2,250	2,400	3,800	950	9,500	4,640	3,680	9,000
16.....	4,710	565	970	1,250	2,830	2,200	6,500	900	6,500	4,140	3,240	8,760
17.....	3,180	565	1,460	1,040	2,360	2,200	5,500	850	5,500	3,860	3,080	7,800
18.....	2,070	551	1,310	938	2,140	2,000	4,400	850	5,000	3,500	3,160	6,400
19.....	2,070	537	922	997	2,070	2,000	4,000	800	4,200	3,330	2,830	6,400
20.....	1,750	524	796	2,360	2,000	1,900	3,800	800	3,300	3,240	2,510	7,020
21.....	1,350	518	712	4,040	2,000	1,800	3,200	800	3,000	4,230	2,510	10,800
22.....	1,260	524	670	3,240	2,000	2,200	3,200	800	3,200	4,230	2,440	9,000
23.....	1,200	518	1,400	2,590	1,750	3,000	3,000	800	12,000	3,680	2,440	6,400
24.....	2,280	518	3,860	2,210	2,740	3,800	2,800	800	11,000	3,420	2,670	5,940
25.....	1,690	524	3,500	1,940	5,940	3,400	2,400	800	20,000	3,080	2,590	8,860
26.....	1,630	518	2,360	1,810	4,740	3,800	2,200	800	21,000	2,750	2,440	6,630
27.....	1,810	593	1,940	1,630	3,080	3,200	2,000	900	24,800	2,750	2,360	.....
28.....	2,070	600	1,690	1,570	2,910	2,800	1,900	4,400	27,600	2,750	2,670	.....
29.....	1,690	747	1,690	1,350	2,910	2,600	1,800	.....	24,400	2,590	6,450	.....
30.....	1,400	719	2,440	1,350	4,480	2,200	1,800	.....	16,800	2,510	7,800	.....
31.....	1,300	677	.....	1,300	.....	2,000	2,200	.....	12,100	.....	5,940	.....
Mean.....	2,230	675	1,170	1,610	2,320	3,260	3,330	1,340	9,120	6,120	3,980	8,120

NOTE.—Mean discharge, May 1 to 4, inclusive, estimated as 2,830 second-feet, and for May 6 to 12, inclusive, as 5,940 second-feet. Discharge, December 14 to March 26, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of SUSQUEHANNA RIVER AT CONKLIN, for the year ended June 30,
1917

[Drainage area, 2,350 square miles]

MONTH	DISCHARGE IN SECOND-FOOT				RUN-OFF
	Maximum	Minimum	Mean	Per square mile	Depth in inches on drainage area
July	6,000	1,200	2,230	0.949	1.00
August	1,170	518	675	0.287	0.33
September	3,860	530	1,170	0.497	0.55
October	4,040	828	1,610	0.685	0.79
November	5,940	1,230	2,320	0.987	1.10
December	7,330	1,800	3,260	1.39	1.60
January	7,500	1,800	3,330	1.42	1.64
February	4,400	800	1,340	0.571	0.59
March	27,600	1,900	9,120	3.88	4.47
April	14,300	2,510	6,120	2.60	2.90
May .....	.....	2,360	2,960	1.69	1.95
June .....	.....	3,240	8,120	3.46	3.86
The year	27,600	518	3,620	1.54	26.87

CHENANGO RIVER

CHENANGO RIVER NEAR CHENANGO FORKS

Location.—About $1\frac{1}{2}$ miles below Tioughnioga river, 2 miles by road below Chenango Forks post-office, Broome county, and $11\frac{1}{2}$ miles above Binghamton and the mouth.

Drainage area.—1,380* square miles. See "Diversions."

Records available.—November 11, 1912, to June 30, 1917. Records were obtained at Binghamton, July 31, 1901, to December 31, 1911.

Gage.—Stevens water-stage recorder on the left bank on the farm of Erastus Ingraham.

Discharge measurements.—Made from cable about 100 feet above the gage or by wading.

Channel and control.—Sand, gravel and small cobblestones; practically permanent.

Extremes of discharge.—Current year: Maximum stage from water-stage recorder, 11.16 feet at 4 A. M., March 28; discharge, 23,600 second-feet. Minimum stage from water-stage recorder, 2.50 feet from 1 until 2 P. M., August 23; discharge, 210 second-feet.

* Supersedes the value previously published.

1901-1917: Maximum stage recorded, 12.18 feet from noon until 1 p. m., April 2, 1916; discharge, 27,900 second-feet. Minimum stage recorded, 4.6 feet at the former station in Binghamton at 8 a. m., August 28, 1909; discharge, 10 second-feet.

Ice.—Stage-discharge relation affected by ice.

Diversions.—The run-off from 87.3 square miles at head of Chenango river and from 15.7 square miles at head of Tioughnioga river is stored in reservoirs and except for discharge over the spillways it is diverted out of the drainage area to the Erie canal. The above-mentioned drainage area from Chenango river does not include these two areas.

Accuracy.—Stage-discharge relation practically permanent; affected by ice for a large part of the period from January to March, inclusive. Rating curve well defined between 120 and 35,000 second-feet. Operation of the water-stage recorder fairly satisfactory throughout year. Daily discharge ascertained by applying to the rating table mean daily gage heights, determined by inspecting gage height graph or for days of considerable fluctuation by averaging the hourly discharge. Results good except for periods when stage-discharge was affected by ice, when results were fairly good.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Engineer and Surveyor.

Discharge measurements of CHENANGO RIVER NEAR CHENANGO FORKS, during the year ended June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 14 a.....	E. D. Burchard.....	2.52	215
Sept. 14 a.....	E. D. Burchard.....	2.54	223
Sept. 30.....	E. D. Burchard.....	4.54	2,540
Dec. 29 b.....	E. D. Burchard.....	6.39	1,290
Jan. 22 b.....	E. D. Burchard.....	5.12	1,679
Feb. 12 b.....	E. D. Burchard.....	4.39	608
Mar. 8 b.....	E. D. Burchard.....	5.33	1,550
April 2.....	E. D. Burchard.....	8.28	12,400
May 14.....	C. C. Covert.....	4.30	2,280
June 4.....	E. D. Burchard.....	4.54	2,680

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily discharge, in second-feet, of CHENANGO RIVER NEAR CHENANGO FORKS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,420	414	255	1,640	872	3,520	650	1,900	4,000	8,830	1,740	3,650
2.....	1,220	382	242	1,070	1,230	2,610	850	1,500	3,000	12,100	1,940	4,170
3.....	1,130	368	232	838	1,050	2,180	700	900	2,400	12,700	1,940	3,350
4.....	1,380	352	237	700	959	2,020	1,000	850	2,200	9,610	1,860	2,790
5.....	1,260	365	255	593	1,070	2,360	2,400	900	1,900	6,830	2,240	2,360
6.....	1,090	348	255	521	1,430	2,520	6,000	850	1,900	2,180	5,550	2,440
7.....	948	322	352	454	1,280	2,180	5,000	850	1,600	8,210	4,840	6,390
8.....	860	322	430	430	1,120	1,940	3,800	850	1,500	6,440	3,860	8,500
9.....	794	303	530	406	1,010	1,720	3,000	850	1,600	5,430	3,750	8,800
10.....	827	297	390	398	1,450	2,100	2,800	700	1,600	4,280	3,350	7,370
11.....	805	297	315	390	1,640	1,780	2,000	650	1,800	3,650	2,790	10,800
12.....	730	322	285	368	1,270	1,570	900	600	1,900	3,750	2,520	14,600
13.....	1,940	330	261	368	1,120	1,500	1,200	550	6,000	3,860	2,440	10,600
14.....	1,570	330	255	642	1,580	1,420	2,600	550	5,500	3,350	2,270	7,930
15.....	1,220	330	430	882	2,100	1,270	5,500	550	4,000	2,970	1,940	7,370
16.....	937	315	870	690	1,640	1,140	4,400	550	3,200	2,790	1,660	7,370
17.....	860	297	720	959	1,450	1,100	3,200	550	3,200	2,520	1,720	6,180
18.....	816	279	546	594	1,390	1,000	2,600	600	3,200	2,270	1,660	4,960
19.....	710	267	462	546	1,420	950	2,200	600	2,200	2,180	1,520	5,920
20.....	622	250	398	829	1,460	900	1,800	600	2,000	2,700	1,490	5,820
21.....	555	242	330	3,580	1,410	950	1,700	600	3,200	3,060	1,700	11,500
22.....	538	242	322	2,930	1,120	1,100	1,600	550	4,000	2,610	1,740	8,500
23.....	530	242	1,280	1,860	1,080	1,600	1,500	550	8,000	2,270	2,180	7,100
24.....	1,000	246	1,620	1,450	4,080	1,900	1,400	550	13,000	2,100	1,940	9,200
25.....	753	250	970	1,190	3,980	2,100	1,400	550	19,000	1,780	1,940	8,900
26.....	611	242	772	1,040	2,360	2,000	1,200	600	19,000	1,630	1,940	5,920
27.....	582	242	650	937	2,100	1,700	900	1,900	21,000	1,780	1,860	12,900
28.....	853	261	574	838	1,860	1,600	1,000	4,400	22,200	1,780	2,700	11,300
29.....	487	297	670	761	1,940	1,200	900	.....	15,000	1,660	7,510	7,980
30.....	446	291	784	700	3,500	900	1,200	.....	9,730	1,600	6,960	8,510
31.....	422	267	.....	670	.....	700	2,000	.....	7,730	.....	4,610	.....
Mean...	901	300	526	932	1,670	1,660	2,170	916	6,350	4,230	2,780	7,440

NOTE.—Discharge, December 17 to March 24, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph. See "Diversions" in station description.

Monthly discharge of CHENANGO RIVER NEAR CHENANGO FORKS, for the year ended June 30, 1917

[Drainage area, 1,380 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	1,940	422	901	0.653	0.75
August.....	414	242	300	0.217	0.25
September.....	1,620	232	526	0.381	0.42
October.....	3,580	368	932	0.675	0.78
November.....	4,080	872	1,670	1.21	1.35
December.....	3,520	700	1,660	1.20	1.38
January.....	6,000	650	2,170	1.57	1.81
February.....	4,400	550	916	0.664	0.69
March.....	22,200	1,500	6,350	4.60	5.30
April.....	12,700	1,600	4,230	3.07	3.42
May.....	7,510	1,490	2,780	2.01	2.32
June.....	12,900	2,360	7,440	5.39	6.01
The year.....	22,200	232	2,490	1.80	24.48

NOTE.—See "Diversions" in station description.

CHEMUNG RIVER

DESCRIPTION

Chemung river is formed at Painted Post, N. Y., by the confluence of Tioga and Cohocton rivers. Cohocton river lies entirely in the state of New York. Tioga river receives, just above its mouth, Canisteo river, a large tributary, which also has its drainage basin in New York to the south of Cohocton. The drainage area of Tioga river, above the Canisteo, is mainly in Pennsylvania. Chemung river flows southeastward through Corning, Elmira and Chemung, crosses the state line and flows for a short distance in Pennsylvania, then returns to New York and crosses again to Pennsylvania near Waverly, finally emptying into the Susquehanna near Athens, Bradford county, Pa. The total length of the river is about 40 miles, of which 30 miles lie in New York. The drainage area, measured at the mouth, is 2,520 square miles.

The topographic features of the basin are, as a rule, bold and broad. The hills rise to a height of several hundred feet on either side, within a short distance of the stream. The upland plateau is to a large extent wooded, has impervious soil, no lake storage and few marsh areas. Tributaries are ramifying and uniformly distributed, though not very numerous, and dry gullies, or flood channels, are common. The main river is sluggish, with low banks and a broad valley, or flood plain, which is often overflowed. The concentration of storm waters from the three large streams, which unite just above Corning, makes possible excessive floods. Dikes have been erected in the cities of Elmira and Corning for protection. One of the highest recorded freshets in the stream occurred June 1, 1889. It was preceded by phenomenal rainfall, aggregating several inches in a few hours during the night of May 31. The discharge at this time has been estimated at 67 second-feet per square mile from 2,055 square miles, or 138,000 second-feet.^a

CHEMUNG RIVER AT CHEMUNG

Location.—At the new highway bridge, about midway between Chemung, Chemung county, N. Y., and Willawana, Pa., half a mile upstream from the state line and about 10 miles above the mouth.

^a Report of Francis Collingwood, C. E., on the protection of the city of Elmira, N. Y., against floods.

Drainage area.—2,440 square miles.

Records available.—September 11, 1903, to June 30, 1917.

Gage.—Tape gage at the upstream side of the right span of the bridge. Gage read by D. L. Orcutt.

Discharge measurements.—Made from the bridge at medium and high stages and by wading at low stages.

Channel and control.—Sand and gravel; occasionally shifting.

Extremes of discharge.—Current year: Maximum stage recorded, 11.7 feet at 4:45 p. m., March 12; discharge, 27,600 second-feet. Minimum stage recorded, 1.83 feet at 5 p. m., September 3; discharge, 222 second-feet.

1903–1917: Maximum stage recorded, 17.46 feet at 5 a. m., June 18, 1916; discharge, approximately 63,200 second-feet. Minimum stage recorded, 1.47 feet at 7 a. m., August 14, 1911; discharge, 49 second-feet.

Ice.—Stage-discharge relation affected by ice.

Regulation.—Power is developed above the station, the largest plant being at Elmhira, N. Y.

Accuracy.—Stage-discharge relation probably permanent between dates of shift; affected by ice for a large portion of the period from December to March, inclusive. Rating curve well defined between 200 and 45,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results good except during periods when the stage-discharge relation was affected by ice. Results fair for other periods.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Engineer and Surveyor.

Discharge measurements of CHEMUNG RIVER AT CHEMUNG, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 25.....	E. D. Burchard.....	2.60	710
Sept. 13 a.....	E. D. Burchard.....	1.92	260
Sept. 13 c.....	E. D. Burchard.....	1.92	271
Dec. 30 b.....	E. D. Burchard.....	2.50	312
Jan. 20 c.....	E. D. Burchard.....	3.53	640
Feb. 11 b.....	E. D. Burchard.....	2.28	351
Mar. 7 c.....	E. D. Burchard.....	2.79	770
April 4.....	E. D. Burchard.....	6.01	6,290
June 1.....	E. D. Burchard.....	5.06	4,670

a Measurement made by wading.

b Measurement made through complete ice cover.

c Measurement made through partial ice cover.

GAGING OF STREAMS: SUSQUEHANNA RIVER BASIN 421

Daily discharge, in second-feet, of CHEMUNG RIVER AT CHEMUNG, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	April	May	June
1.....	2,140	464	260	1,360	438	1,200	460	380	3,460	5,080	870	4,440
2.....	1,730	432	250	790	451	1,050	340	700	2,440	7,850	915	3,460
3.....	1,600	419	241	581	511	870	380	750	2,000	9,060	870	3,100
4.....	1,730	389	232	477	504	790	380	800	1,480	7,010	790	2,440
5.....	1,860	464	246	432	477	710	460	700	1,200	4,240	870	2,000
6.....	1,540	389	241	383	438	623	1,500	600	870	4,860	4,650	2,290
7.....	1,300	365	532	348	419	630	3,600	600	830	7,850	5,080	12,400
8.....	1,100	377	484	332	413	595	2,000	500	915	7,280	4,440	18,000
9.....	1,100	348	419	310	389	560	1,600	500	915	5,530	4,440	13,800
10.....	1,150	332	371	332	389	560	1,400	440	790	4,040	4,040	8,750
11.....	1,000	332	348	277	389	546	1,000	360	1,480	3,100	3,250	13,100
12.....	960	348	364	277	451	518	800	840	23,400	3,100	2,440	8,440
13.....	915	343	266	277	464	451	700	340	8,750	3,460	2,140	5,300
14.....	870	413	260	277	458	420	950	280	5,080	2,930	1,860	3,840
15.....	830	371	389	258	504	360	1,400	220	3,650	2,440	1,540	3,100
16.....	790	348	710	343	567	320	1,200	220	2,760	2,140	1,300	2,760
17.....	750	338	588	360	595	300	950	280	5,080	1,860	1,250	2,440
18.....	670	321	490	321	560	280	700	280	5,300	1,730	1,250	2,000
19.....	670	204	389	310	532	280	550	360	2,930	1,540	1,100	2,000
20.....	630	280	354	389	511	300	550	600	2,000	1,420	1,000	3,100
21.....	602	260	316	1,250	490	280	480	1,000	3,650	1,480	1,300	5,300
22.....	960	250	310	1,730	504	320	340	1,000	3,460	1,480	1,250	3,100
23.....	1,200	240	332	1,150	518	340	420	850	4,240	1,250	1,960	2,140
24.....	830	240	294	870	532	380	550	800	7,850	1,150	2,290	11,000
25.....	710	240	288	710	750	280	340	800	9,380	1,050	1,860	7,560
26.....	630	250	288	630	960	420	550	1,200	7,280	1,000	1,600	4,240
27.....	1,000	272	266	553	750	360	550	3,200	7,280	960	1,480	6,750
28.....	616	260	255	532	750	300	440	7,010	11,700	870	1,730	5,300
29.....	588	316	413	477	750	320	480	.....	7,010	870	11,400	4,650
30.....	560	248	870	451	960	320	300	.....	5,530	830	11,000	5,300
31.....	518	282	.....	432	.....	340	340	.....	4,040	.....	6,240	.....
Mean...	1,020	331	367	556	547	486	829	896	4,730	3,250	2,780	5,740

NOTE.— Discharge, December 14 to February 27, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of CHEMUNG RIVER AT CHEMUNG, for the year ended June 30, 1917

[Drainage area, 2,440 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July.....	2,140	518	1,020	0.418	0.48
August.....	464	240	331	0.136	0.15
September.....	870	232	367	0.150	0.17
October.....	1,730	277	556	0.228	0.26
November.....	960	389	547	0.224	0.25
December.....	1,200	280	486	0.199	0.23
January.....	3,600	300	829	0.340	0.39
February.....	7,000	220	896	0.367	0.38
March.....	23,400	790	4,730	1.94	2.24
April.....	9,060	830	3,250	1.33	1.48
May.....	11,400	790	2,780	1.14	1.31
June.....	18,000	2,000	5,740	2.35	2.62
The year.....	23,400	220	1,790	0.734	9.96

ALLEGHENY RIVER DRAINAGE BASIN

ALLEGHENY RIVER

DESCRIPTION

Allegheny river drains the western slopes of the Allegheny mountains in Pennsylvania and New York.

The river rises in the central part of Potter county, in northern Pennsylvania, flows in a general northwesterly direction into New York to about the central part of Cattaraugus county, where it turns and flows southwestward back into Pennsylvania. At Franklin, in Venango county, it turns and flows southeastward to the mouth of Mahoning creek, in Armstrong county, where it again bends to the southwest, and at Pittsburgh joins the Monongahela to form the Ohio. The river is about 290 miles long (map measurement) and its drainage area, which is nearly 50 per cent greater than that of the Monongahela, comprises about 11,100 square miles.

The noteworthy tributaries in New York are Oswayo, Olean and Tunugwant creeks. Oswayo and Tunugwant creeks rise in Pennsylvania. Two other important creeks — Conewango and Brokenstraw — have their sources in New York state, but are tributary to the main stream at points in Pennsylvania.

The elevation of the sources of the river is about 2,500 feet above sea-level. At Olean, N. Y., the elevation is 1,420 feet; at Franklin, Pa., the elevation is 960 feet; at Pittsburgh the elevation is 692 feet.

The basin is somewhat regular in shape, being about $2\frac{1}{2}$ times as long as it is wide. Its northwestern boundary is, at one point, about 8 miles from Lake Erie, lying within about 40 miles of Buffalo. Below Franklin, Pa., the river flows near the western boundary of its basin. The surrounding country is made up of high hills or mountains separated by deep valleys, but west of the main river the country is less mountainous, though the surface is still rolling and hilly.

The bed of the stream is composed chiefly of gravel, ranging in size from small pebbles to cobblestones. The banks are made up of sand, gravel or clay. The area is underlaid by shales and except in stream valleys the soil has little depth.

This basin is exceptionally rich in natural resources — coal, oil,

gas, limestone, glass sand and building stones, which occur in abundance.

This basin was at one time covered with timber, the principal varieties being pine and hemlock. At present, however, only light forests and brush are found at the headwaters of the tributaries, the pine and hemlock having been cut off some time ago.

The mean annual rainfall in this region is about 40 inches and the winters are severe. Snowfall is heavy in the upper part of the basin and lasts for long periods, and ice forms to a thickness of about 2 feet. The heavy ice during the spring floods is very destructive. Jams frequently occur, which cause considerable damage from backwater.

Allegheny river is subject to very severe floods, which cause heavy losses to manufacturing and other interests along the river.

The fall of the main river and tributaries is comparatively large and if the stream were in a district where fuels were more expensive, it would undoubtedly be much used for power. When the price of coal advances, so that water-power can compete with steam, the water-power on this stream will be more extensively developed.

The Cuba reservoir, which feeds the Erie canal through Genesee river, lies on the divide between the Allegheny and Genesee drainage basins. Part of the overflow from this reservoir passes into the Allegheny and the rest into the Genesee.

ALLEGHENY RIVER AT RED HOUSE

Location.—At highway bridge in Red House, Cattaraugus county, about 5 miles below Salamanca and 13 miles above the boundary between New York and Pennsylvania. Conewango creek, the outlet of Chautauqua lake, enters the Allegheny in Pennsylvania about 30 miles below the station.

Drainage area.—1,640 square miles.

Records available.—September 4, 1903, to June 30, 1917.

Gage.—Chain, attached to the upstream side of bridge near left-hand end. Read by W. E. Coe.

Discharge measurements.—Made from downstream side of bridge.

Channel and control.—Coarse gravel, occasionally shifting. Current good for medium and high stages, slow at low stages.

Extremes of discharge.—Current year: Maximum stage recorded,

9.35 feet at 3 p. m., March 12; discharge, 17,600 second-feet. Minimum stage recorded, 3.1 feet at 3 p. m., August 27, and at 6 a. m., August 28 and 31; discharge, 210 second-feet.

1903-1917: Maximum stage recorded, 12.7 feet, March 26, 1913; discharge, approximately 40,000 second-feet. Minimum stage recorded, 2.7 feet on several days in December, 1908; discharge, approximately 100 second-feet.

Ice.—Stage-discharge relation somewhat affected by ice.

Regulation.—Low-water flow may be slightly affected by the operation of several small power-plants above Salamanca. At Olean a wasteway from Cuba reservoir enters the river through Olean creek. This reservoir is on the divide between Oil creek, tributary to Allegheny river, and Genesee river, tributary to Lake Ontario. The stored water is commonly turned into Genesee river through the abandoned summit level of Genesee valley canal, or may be diverted into Oil creek through a guard-lock at the head of the canal.

Accuracy.—Stage-discharge relation practically permanent between dates of shifting. Affected by ice during most of February. Rating curve well defined between 300 and 900 second-feet and between 6,000 and 13,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying mean daily gage heights to rating table. Results fairly good except for periods when the stage-discharge relation was affected by ice, when results were fair.

Coöperation.—Station established and maintained by the United States Geological Survey in coöperation with the State Conservation Commission.

Discharge measurements of ALLEGHENY RIVER AT RED HOUSE, during the year ended
June 30, 1917

DATE	Made by	Gage height	Discharge
		<i>Feet</i>	<i>Sec.-ft.</i>
July 24.....	E. D. Burchard.....	3.69	740
Sept. 11 a.....	E. D. Burchard.....	3.44	434
Sept. 12 a.....	E. D. Burchard.....	3.30	335
Oct. 25.....	E. D. Burchard.....	3.70	605
Oct. 25.....	E. D. Burchard.....	3.70	707
Feb. 9 b.....	E. D. Burchard.....	6.92	883
Mar. 13.....	E. D. Burchard.....	8.56	13,500
Mar. 13.....	E. D. Burchard.....	8.20	12,200
Mar. 29.....	C. C. Covert.....	7.80	10,500
May 30.....	E. D. Burchard.....	7.02	8,130
June 26.....	E. D. Burchard.....	4.81	2,470
June 26.....	E. D. Burchard.....	4.78	2,410

a Measurement made by wading.

b Measurement made through complete ice cover.

Daily discharge, in second-feet, of ALLEGHENY RIVER AT RED HOUSE, for the year ended June 30, 1917

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	1,030	405	254	278	368	6,600	1,730	2,000	8,250	7,780	1,890	8,060
2	930	405	278	278	495	6,600	1,730	1,700	6,000	7,400	1,890	7,400
3	930	345	254	278	595	5,410	1,730	1,500	4,090	7,400	2,230	7,400
4	2,030	330	265	285	545	4,090	1,730	1,400	3,850	7,080	2,060	6,170
5	1,540	298	278	265	423	2,980	2,400	1,200	3,850	7,400	2,230	4,300
6	1,170	330	298	254	423	2,050	6,600	1,100	3,850	7,400	2,410	4,550
7	1,110	330	317	265	405	1,540	7,550	1,000	3,850	7,730	3,610	8,750
8	930	330	405	265	423	1,580	4,860	950	3,850	6,470	4,800	12,800
9	810	330	595	278	595	1,730	3,850	900	2,590	5,600	4,550	13,200
10	648	278	595	265	810	1,440	3,620	850	1,810	4,800	4,550	10,800
11	495	265	423	238	990	1,300	2,500	800	3,850	4,800	4,300	11,200
12	477	265	330	238	930	1,170	1,800	800	15,000	4,550	4,550	10,200
13	1,580	265	330	345	930	1,110	1,730	750	14,100	4,300	4,060	7,730
14	2,940	298	317	648	1,050	1,110	1,580	700	10,800	4,060	3,830	6,770
15	1,730	265	330	545	1,050	990	1,580	700	9,800	3,390	3,390	5,060
16	1,580	265	330	477	1,050	930	1,580	700	10,200	2,790	2,780	3,610
17	1,300	265	330	423	1,110	850	1,730	700	7,730	2,410	2,060	2,590
18	1,110	265	345	423	1,110	800	1,580	800	5,890	2,410	1,890	2,320
19	930	265	330	545	1,170	800	1,510	950	5,060	2,230	1,890	2,060
20	810	265	345	1,170	1,050	750	1,440	950	6,170	2,060	2,590	1,570
21	700	238	390	1,970	1,050	700	1,440	900	7,400	2,140	4,060	1,420
22	700	254	345	1,170	930	700	1,730	950	6,470	2,230	4,060	1,280
23	648	265	298	1,170	930	700	2,220	900	6,170	2,060	4,060	1,280
24	595	254	317	930	2,310	700	2,140	950	8,060	1,980	4,060	3,180
25	595	238	298	755	3,400	750	2,050	1,200	9,450	2,060	4,060	4,060
26	495	238	330	595	2,590	800	1,890	7,550	8,750	2,060	4,060	4,300
27	405	221	317	545	2,050	1,000	1,890	12,400	9,800	2,060	4,300	2,980
28	370	221	278	495	2,590	1,440	1,730	10,800	10,800	2,060	6,170	2,780
29	370	265	298	423	4,860	2,400	1,440	.....	11,600	2,060	8,750	2,780
30	390	238	265	330	6,300	2,400	1,580	.....	10,200	1,980	8,750	2,780
31	400	221	.....	390	.....	1,810	2,220	.....	7,080	.....	7,400	.....
Mean...	965	281	339	533	1,420	1,850	2,360	2,000	7,300	4,090	3,910	5,450

NOTE.—Discharge, December 17 to 27 and February 2 to 25, inclusive, estimated, because of ice, from discharge measurements, weather records and study of gage height graph.

Monthly discharge of ALLEGHENY RIVER AT RED HOUSE, for the year ended June 30, 1917

[Drainage area, 1,640 square miles]

MONTH	DISCHARGE IN SECOND-FEET				RUN-OFF Depth in inches on drainage area
	Maximum	Minimum	Mean	Per square mile	
July	2,980	370	965	0.588	0.69
August	405	221	281	0.171	0.20
September	595	254	339	0.207	0.23
October	1,970	238	533	0.325	0.37
November	6,300	368	1,420	0.866	0.97
December	6,600	700	1,850	1.13	1.30
January	7,550	1,440	2,360	1.44	1.66
February	12,400	700	2,000	1.22	1.27
March	15,000	1,810	7,300	4.45	5.13
April	7,730	1,980	4,090	2.49	2.78
May	4,800	1,890	3,010	2.38	2.74
June	13,200	1,280	5,450	3.32	3.70
The year	15,000	221	2,540	1.55	21.03

CHADAKOIN RIVER

DESCRIPTION

Chadakoin river is the outlet of Chautauqua lake. It follows a winding course for about 18 miles, having a general easterly direction, to its junction with Conewango creek, which rises in the northerly parts of Chautauqua and Cattaraugus counties and flows in a southerly direction, entering the Allegheny river in the state of Pennsylvania.

Chautauqua lake, about 16 miles long and 1 to 2 miles wide, occupies a deep valley in the highlands which rise abruptly a few miles to the southeast of Lake Erie. The surface of the lake is about 735 feet above Lake Erie and 1,308 feet above sea-level, while the surrounding hills rise 600 to 800 feet higher. There are numerous small streams entering the lake, of which Prendergast creek is the largest.

The principal tributary of Chadakoin river is Cassadaga creek, entering from the north about 4 miles below Jamestown. The river has a total fall of about 70 feet from the lake surface to its junction with Conewango creek.

CHADAKOIN RIVER AT BOAT LANDING, JAMESTOWN

This station, established July 31, 1915, is located at the Fairmount avenue bridge over Chadakoin river about 3 miles below the foot of Chautauqua lake. The gage, No. 226, is a staff having a range of 9 feet, between elevations 1,306.0 and 1,315.0 (U. S. G. S. datum), secured to a pile about 60 feet upstream from the Fairmount avenue bridge near the right bank of the stream. The gage is read once daily to tenths, with occasional readings to half-tenths. The full record of water-surface elevations is given in the following tables.

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER AT BOAT LANDING, JAMESTOWN, for the ten months ended June 30, 1916. Horace S. Butts, Observer

DAY	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,309.6	1,309.1	1,309.1	1,308.7	1,310.0	1,310.4	1,309.4	1,311.8	1,311.0	1,309.6
2.....	1,309.6	1,309.2	1,309.3	1,308.8	1,310.4	1,310.4	1,309.4	1,311.9	1,310.9	1,309.5
3.....	1,309.5	1,309.2	1,309.1	1,308.6	1,310.6	1,310.3	1,309.4	1,311.8	1,310.8	1,309.6
4.....	1,309.5	1,309.2	1,308.9	1,308.7	1,310.6	1,310.3	1,309.3	1,311.7	1,310.8	1,309.6
5.....	1,309.5	1,309.3	1,309.0	1,308.4	1,310.6	1,310.2	1,309.3	1,311.6	1,310.7	1,309.5

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER AT BOAT LANDING, JAMESTOWN, for the ten months ended June 30, 1916 — *Continued*

DAY	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
6.....	1,309.4	1,309.2	1,308.9	1,308.6	1,310.9	1,310.2	1,309.3	1,311.5	1,310.6	1,309.4
7.....	1,309.5	1,309.2	1,308.9	1,308.6	1,311.0	1,310.2	1,309.3	1,311.4	1,310.5	1,309.2
8.....	1,309.4	1,309.2	1,308.8	1,308.7	1,311.0	1,310.0	1,309.3	1,311.3	1,310.4	1,309.3
9.....	1,309.4	1,309.3	1,308.9	1,308.8	1,310.9	1,310.0	1,309.4	1,311.2	1,310.6	1,309.3
10.....	1,309.4	1,309.3	1,308.8	1,308.7	1,310.8	1,310.0	1,309.4	1,311.1	1,310.3	1,309.4
11.....	1,309.3	1,309.2	1,308.8	1,308.6	1,310.8	1,309.9	1,309.4	1,311.0	1,310.5	1,309.5
12.....	1,309.3	1,309.2	1,308.9	1,308.6	1,310.7	1,309.9	1,309.4	1,311.0	1,310.2	1,309.4
13.....	1,309.3	1,309.2	1,308.8	1,308.5	1,310.8	1,309.9	1,309.4	1,310.9	1,310.0	1,309.4
14.....	1,309.3	1,309.2	1,308.7	1,308.6	1,310.7	1,309.8	1,309.4	1,311.55	1,309.9	1,309.3
15.....	1,309.3	1,309.3	1,308.8	1,308.5	1,310.7	1,309.8	1,309.4	1,311.5	1,309.9	1,309.3
16.....	1,309.3	1,309.3	1,308.8	1,308.6	1,310.6	1,309.7	1,309.4	1,311.3	1,310.0	1,309.5
17.....	1,309.3	1,309.3	1,308.8	1,308.8	1,310.6	1,309.7	1,309.4	1,311.4	1,309.9	1,309.6
18.....	1,309.3	1,309.3	1,308.7	1,308.8	1,310.5	1,309.7	1,309.4	1,311.4	1,310.0	1,309.6
19.....	1,309.3	1,309.4	1,308.5	1,308.6	1,310.4	1,309.7	1,309.4	1,311.2	1,309.8	1,309.6
20.....	1,309.3	1,309.4	1,309.1	1,308.9	1,310.3	1,309.6	1,309.3	1,311.1	1,309.7	1,309.7
21.....	1,309.4	1,309.4	1,309.2	*1,306.2	1,310.3	1,309.6	1,309.3	1,311.3	1,309.6	1,309.7
22.....	1,309.2	1,309.4	1,309.1	*1,306.1	1,310.6	1,309.5	1,309.3	1,311.5	1,309.5	1,309.7
23.....	1,309.1	1,309.4	1,309.1	*1,306.1	1,310.7	1,309.5	1,309.3	1,311.5	1,309.7	1,309.6
24.....	1,309.1	1,309.3	1,309.1	1,308.7	1,310.6	1,309.5	1,309.3	1,311.4	1,309.8	1,309.6
25.....	1,309.1	1,309.2	1,309.1	1,308.6	1,310.5	1,309.5	1,309.3	1,311.3	1,309.7	1,309.6
26.....	1,309.1	1,309.2	1,309.2	1,308.7	1,310.5	1,309.5	1,309.3	1,311.3	1,309.7	1,309.5
27.....	1,309.2	1,309.2	1,309.4	1,308.6	1,310.4	1,309.5	1,309.6	1,311.3	1,309.6	1,309.5
28.....	1,309.2	1,309.2	1,309.5	1,308.7	1,310.4	1,309.5	1,310.55	1,311.3	1,309.7	a
29.....	1,309.2	1,309.2	1,309.7	1,308.7	1,310.4	1,309.5	1,311.15	1,311.2	1,309.6	1,309.4
30.....	1,309.1	1,309.3	1,309.7	1,308.8	1,310.3	.....	1,311.45	1,311.1	1,309.7	1,309.4
31.....	.....	1,309.1	.....	1,308.4	1,310.3	.....	1,311.7	.....	1,309.7	.....

* Dam let out in order to lower water in mill-race, to repair broken water-main.

† Dam replaced. a No record

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER AT BOAT LANDING, JAMESTOWN, for the year ended June 30, 1917. Horace S. Butts, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1..	1,309.4	1,308.6	1,308.0	1,307.9	1,308.2	1,309.1	1,309.5	1,309.6	1,309.8	1,310.85	1,309.85	1,310.0
2..	1,309.3	1,308.6	1,308.1	1,307.9	1,308.1	1,309.1	1,309.5	1,309.7	1,309.8	1,310.9	1,309.8	1,310.1
3..	1,309.4	1,308.6	1,308.1	1,307.9	1,308.2	1,309.1	1,309.5	1,309.7	1,309.8	1,311.0	1,309.8	1,310.2
4..	1,309.4	1,308.6	1,308.1	1,307.8	1,308.0	1,309.1	1,309.6	1,309.7	1,309.8	1,310.8	1,309.45	1,310.2
5..	1,309.3	1,308.5	1,308.0	1,307.8	1,308.1	1,309.2	1,309.6	1,309.7	1,309.7	1,310.5	1,309.5	1,310.1
6..	1,309.2	1,308.5	1,308.0	1,307.9	1,308.0	1,309.7	1,310.0	1,309.6	1,309.7	1,310.8	1,309.6	1,310.2
7..	1,309.2	1,308.5	1,308.0	1,307.8	1,308.0	1,309.2	1,310.1	1,309.6	1,309.75	1,311.1	1,309.7	1,310.4
8..	1,309.2	1,308.5	1,308.1	1,307.8	1,308.1	1,309.1	1,310.1	1,309.6	1,309.75	1,310.8	1,309.8	1,310.5
9..	1,309.1	1,308.5	1,308.2	1,307.8	1,308.1	1,309.3	1,310.0	1,309.6	1,309.75	1,310.85	1,309.8	1,310.5
10..	1,309.1	1,308.5	1,308.1	1,307.9	1,308.1	1,309.2	1,310.0	1,309.5	1,309.75	1,310.45	1,309.8	1,310.5
11..	1,309.0	1,308.4	1,308.1	1,307.9	1,308.1	1,309.0	1,310.0	1,309.5	1,310.0	1,310.6	1,309.7	1,310.4
12..	1,309.0	1,308.5	1,308.1	1,307.8	1,308.1	1,309.2	1,310.0	1,309.5	1,310.5	1,310.6	1,309.6	1,310.3
13..	1,309.0	1,308.6	1,308.1	1,307.9	1,308.1	1,309.1	1,309.9	1,309.45	1,310.5	1,310.6	1,309.6	1,310.2
14..	1,309.2	1,308.4	1,308.1	1,307.9	1,308.1	1,309.1	1,309.9	1,309.4	1,310.6	1,310.55	1,309.6	1,310.1
15..	1,309.2	1,308.4	1,308.1	1,307.9	1,308.1	1,309.2	1,309.9	1,309.35	1,310.8	1,310.45	1,309.5	1,310.0
16..	1,309.1	1,308.3	1,308.1	1,307.9	1,308.2	1,309.1	1,309.85	1,309.3	1,310.75	1,310.4	1,309.4	1,310.0
17..	1,309.1	1,308.3	1,308.0	1,308.1	1,308.2	1,309.1	1,309.8	1,309.3	1,310.8	1,310.25	1,309.4	1,309.9
18..	1,309.1	1,308.3	1,308.0	1,307.9	1,308.2	1,309.1	1,309.75	1,309.3	1,310.85	1,310.2	1,309.4	1,309.9
19..	1,309.0	1,308.3	1,308.0	1,307.9	1,308.2	1,309.1	1,309.7	1,309.3	1,310.8	1,310.2	1,309.4	1,309.9
20..	1,309.0	1,308.3	1,308.0	1,308.0	1,308.2	1,309.1	1,309.7	1,309.3	1,310.75	1,310.2	1,309.4	1,309.7

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER AT BOAT LANDING, JAMESTOWN, for the year ended June 30, 1917—Continued

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21..	1,309.0	1,308.2	1,307.9	1,308.2	1,308.3	1,309.2	1,308.65	1,309.3	1,310.75	1,310.15	1,309.3	1,309.6
22..	1,309.0	1,308.2	1,307.9	1,308.1	1,308.3	1,309.2	1,309.7	1,309.3	1,310.7	1,310.65	1,309.4	1,309.6
23..	1,309.0	1,308.2	1,308.0	1,308.1	1,308.3	1,309.2	1,309.7	1,309.3	1,310.7	1,310.0	1,309.6	1,309.6
24..	1,308.9	1,308.2	1,308.1	1,308.1	1,308.8	1,309.2	1,309.65	1,309.3	1,310.9	1,309.9	1,309.8	1,309.7
25..	1,308.8	1,308.2	1,308.0	1,308.0	1,308.8	1,309.2	1,309.6	1,309.35	1,310.9	1,309.8	1,309.8	1,309.65
26..	1,308.8	1,308.1	1,307.9	1,308.2	1,308.7	1,309.2	1,309.6	1,309.35	1,310.85	1,309.9	1,309.8	1,309.6
27..	1,308.8	1,308.1	1,307.9	1,308.0	1,308.7	1,309.2	1,309.6	1,309.7	1,310.8	1,309.8	1,309.9	1,309.6
28..	1,308.8	1,308.2	1,307.9	1,308.1	1,308.8	1,309.4	1,309.5	1,309.8	1,310.9	1,309.75	1,309.9	1,309.8
29..	1,308.7	1,308.1	1,308.1	1,308.1	1,308.9	1,309.5	1,309.5	.....	1,310.9	1,309.65	1,310.2	1,309.8
30..	1,308.7	1,308.1	1,308.0	1,308.1	1,309.1	1,309.5	1,309.5	.....	1,310.9	1,309.65	1,310.1	1,309.8
31..	1,308.7	1,308.1	.....	1,308.1	.....	1,309.5	1,309.6	.....	1,310.85	.....	1,310.0	.....

CHADAKOIN RIVER AT WARNER DAM, JAMESTOWN

This station, established July 31, 1915, is located at Warner dam, Jamestown, about 4 miles below the foot of Chautauqua lake. The gage, No. 225, is a staff having a range of 16 feet, between elevations 1,304.0 and 1,320.0 (U. S. G. S. datum), secured to the second pile from the right bank of the river, about 30 feet upstream from the dam. The gage is read once daily to tenths, with occasional readings to half-tenths. The full record of water-surface elevations is given in the following tables.

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER ABOVE WARNER DAM, JAMESTOWN, for the ten months ended June 30, 1916. Horace S. Butts, Observer

DAY	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	1,308.4	1,308.0	1,308.5	1,309.6	1,308.6	1,308.7	1,308.1	1,308.25	1,308.2	1,308.4
2.....	1,308.5	1,308.5	1,308.8	1,309.7	1,308.9	1,308.6	1,308.1	1,308.0	1,308.1	1,307.9
3.....	1,308.5	1,308.6	1,308.4	1,309.0	1,308.8	1,308.5	1,308.0	1,308.0	1,307.9	1,308.6
4.....	1,308.2	1,308.3	1,308.1	1,309.7	1,308.6	1,308.5	1,307.8	1,307.9	1,308.1	1,308.8
5.....	1,308.3	1,308.6	1,308.4	1,309.6	1,308.4	1,308.5	1,307.9	1,307.8	1,308.3	1,308.8
6.....	1,308.2	1,308.6	1,308.2	1,309.6	1,308.8	1,308.3	1,307.5	1,307.7	1,308.2	1,308.6
7.....	1,308.3	1,308.4	1,308.5	1,309.6	1,308.6	1,308.4	1,307.8	1,307.6	1,308.2	1,308.2
8.....	1,308.1	1,308.5	1,308.1	1,309.6	1,308.5	1,308.2	1,307.9	1,307.9	1,308.2	1,308.6
9.....	1,308.5	1,308.6	1,308.4	1,309.6	1,308.5	1,308.5	1,308.0	1,307.7	1,308.6	1,308.5
10.....	1,308.5	1,308.7	1,308.1	1,309.5	1,308.3	1,308.5	1,308.2	1,308.0	1,308.3	1,308.6
11.....	1,308.5	1,308.5	1,308.0	1,309.5	1,308.7	1,308.4	1,308.2	1,308.2	1,308.7	1,308.8
12.....	1,307.8	1,308.5	1,308.1	1,309.5	1,308.5	1,308.4	1,308.2	1,308.2	1,308.3	1,308.6
13.....	1,308.5	1,308.3	1,308.1	1,309.5	1,308.7	1,308.5	1,308.2	1,308.2	1,308.3	1,308.6
14.....	1,308.6	1,308.5	1,308.2	1,309.5	1,308.5	1,308.3	1,308.2	1,308.55	1,308.5	1,308.6
15.....	1,308.5	1,308.6	1,308.1	1,309.4	1,308.4	1,308.3	1,308.3	1,308.2	1,308.5	1,308.4

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER ABOVE WARNER DAM, JAMESTOWN, for the ten months ended June 30, 1916—Continued

DAY	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
16.....	1,308.5	1,308.7	1,308.1	1,309.4	1,308.4	1,308.2	1,308.4	1,308.0	1,308.7	1,308.7
17.....	1,308.6	1,308.7	1,308.1	1,309.4	1,308.4	1,308.6	1,308.2	1,308.3	1,308.7	1,308.6
18.....	1,308.4	1,308.6	1,308.0	1,309.7	1,308.4	1,308.5	1,308.0	1,308.2	1,308.6	1,308.9
19.....	1,308.6	1,308.8	1,307.3	1,309.8	1,308.4	1,308.5	1,308.1	1,308.1	1,308.2	1,308.7
20.....	1,308.5	1,308.8	1,308.8	1,309.8	1,308.5	1,308.5	1,307.8	1,308.4	1,308.3	1,308.6
21.....	1,308.7	1,308.7	1,308.8	1,309.8	1,308.4	1,308.4	1,307.9	1,308.4	1,308.6	1,308.6
22.....	1,308.3	1,308.9	1,308.6	1,309.7	1,308.7	1,308.3	1,307.8	1,308.6	1,308.0	1,308.6
23.....	1,308.2	1,308.6	1,308.6	1,309.7	1,308.4	1,308.3	1,307.9	1,308.3	1,308.6	1,308.8
24.....	1,308.3	1,308.7	1,308.7	1,309.7	1,308.6	1,308.3	1,307.8	1,308.2	1,308.8	1,308.7
25.....	1,307.9	1,308.5	1,308.7	1,309.7	1,308.6	1,308.4	1,307.7	1,308.3	1,308.7	1,308.8
26.....	1,308.2	1,308.6	1,308.7	1,310.0	1,308.6	1,308.4	1,307.9	1,308.0	1,308.6	1,308.6
27.....	1,308.4	1,308.6	1,308.8	1,310.0	1,308.6	1,308.6	1,308.05	1,308.2	1,308.8	1,308.6
28.....	1,308.3	1,308.5	1,308.8	1,310.1	1,308.6	1,308.3	1,308.2	1,308.3	1,308.6	1,308.6
29.....	1,308.4	1,308.6	1,308.8	1,310.0	1,308.5	1,308.2	1,308.4	1,308.4	1,308.8	1,308.6
30.....	1,308.2	1,308.8	1,308.5	1,310.0	1,308.5	.....	1,308.4	1,308.0	1,308.7	1,308.6
31.....	.....	1,308.3	.....	1,310.0	1,308.5	.....	1,308.4	.....	1,308.5	.....

a No record.

Daily elevation of water-surface (U. S. G. S. datum) of CHADAKOIN RIVER ABOVE WARNER DAM, JAMESTOWN, for the year ended June 30, 1917. Horace S. Butts, Observer

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1..	1,308.5	1,307.5	1,306.3	1,303.0	1,307.7	1,308.6	1,208.1	1,308.6	1,308.65	1,308.5	1,308.5	1,307.5
2..	1,308.6	1,307.0	1,306.6	1,303.0	1,306.7	1,308.6	1,308.5	1,308.5	1,308.65	1,308.4	1,308.85	1,307.5
3..	1,308.6	1,306.9	1,306.3	1,303.0	1,306.4	1,308.3	1,308.2	1,308.5	1,308.6	1,308.3	1,308.45	1,307.5
4..	1,308.7	1,306.6	1,305.9	1,303.0	1,306.3	1,308.4	1,308.3	a	1,308.65	1,308.2	1,308.2	1,307.5
5..	1,308.5	1,307.0	1,306.3	1,303.0	1,306.4	1,308.4	1,308.2	a	1,308.7	1,308.0	1,308.35	1,307.5
6..	1,308.3	1,304.7	1,306.2	1,305.4	1,307.5	1,309.0	1,308.6	a	1,308.6	1,308.2	1,308.3	1,307.5
7..	1,308.1	1,307.0	1,306.5	1,305.4	1,307.6	1,308.3	1,308.4	a	1,308.5	1,308.4	1,308.5	1,307.5
8..	1,308.1	1,307.6	1,306.9	1,305.6	1,307.7	1,308.4	1,308.6	a	1,308.6	1,308.3	1,308.5	1,307.5
9..	1,308.3	1,307.2	1,306.7	1,306.9	1,307.5	1,308.5	1,308.4	a	1,308.6	1,308.3	1,308.5	1,307.5
10..	1,306.1	1,307.0	1,306.6	1,306.7	1,307.6	1,307.9	1,308.5	a	1,308.6	1,308.2	1,308.5	1,307.5
11..	1,308.0	1,307.0	1,306.6	1,305.6	1,307.7	1,308.1	1,308.6	a	1,308.7	1,308.05	1,308.5	1,307.4
12..	1,308.0	1,307.0	1,307.0	1,306.4	1,307.6	1,308.6	1,308.5	a	1,308.8	1,308.2	1,308.5	1,307.4
13..	1,307.9	1,305.4	1,307.0	1,305.4	1,307.6	1,308.4	1,308.4	1,308.0	1,308.7	1,308.2	1,308.4	1,307.4
14..	1,308.5	1,306.6	1,307.0	1,306.7	1,307.4	1,308.2	1,308.4	a	1,308.6	1,308.0	1,308.4	1,307.4
15..	1,308.4	1,306.6	1,307.1	1,306.7	1,307.4	1,308.4	1,308.6	1,308.1	1,308.7	1,308.0	1,308.3	1,307.2
16..	1,308.4	1,306.9	1,306.7	1,306.8	1,307.5	1,308.3	1,308.55	1,308.3	1,308.6	1,307.9	1,308.2	1,307.0
17..	1,308.2	1,306.8	1,305.4	1,307.7	1,307.5	1,307.9	1,308.45	1,308.2	1,308.65	1,307.8	1,308.0	1,306.8
18..	1,307.9	1,307.0	1,306.8	1,307.0	1,307.6	1,308.2	1,308.5	1,308.25	1,308.3	1,308.0	1,308.0	1,306.7
19..	1,307.6	1,306.9	1,306.9	1,306.8	1,307.6	1,308.4	1,308.5	1,308.15	1,308.4	1,308.3	1,307.9	1,307.8
20..	1,307.7	1,306.8	1,306.9	1,307.6	1,307.7	1,308.4	1,308.5	1,308.35	1,308.6	1,308.65	1,307.9	1,307.55
21..	1,307.7	1,306.8	1,307.0	1,307.6	1,307.7	1,308.3	1,308.1	1,308.8	1,308.6	1,308.65	1,307.9	1,307.6
22..	1,307.6	1,306.8	1,306.8	1,307.5	1,307.8	1,308.4	1,308.6	1,308.4	1,307.9	1,308.5	1,307.8	1,307.2
23..	1,307.7	1,307.2	1,306.8	1,307.6	1,307.7	1,308.4	1,308.4	1,308.3	1,307.9	1,308.4	1,307.8	1,307.3
24..	1,307.2	1,306.6	1,306.8	1,307.6	1,308.6	1,307.9	1,308.6	1,308.4	1,308.5	1,308.5	1,307.8	1,307.6
25..	1,307.0	1,306.7	1,306.8	1,307.6	1,308.1	1,308.1	1,308.6	1,308.15	1,308.6	1,308.4	1,307.7	1,307.7
26..	1,304.8	1,306.6	1,306.6	1,307.6	1,308.0	1,308.4	1,308.6	1,308.4	1,308.4	1,308.5	1,307.7	1,307.8
27..	1,306.9	1,306.5	1,306.9	1,307.4	1,307.8	1,308.4	1,308.5	1,308.3	1,308.4	1,308.5	1,307.6	1,308.0
28..	1,306.6	1,306.6	1,304.7	1,307.6	1,308.1	1,308.6	1,308.2	1,308.4	1,308.4	1,308.45	1,307.6	1,307.95
29..	1,306.7	1,306.6	1,304.0	1,307.5	1,308.4	1,308.5	1,308.4	.....	1,308.5	1,308.25	1,307.6	1,308.4
30..	1,304.7	1,306.4	1,306.8	1,307.6	1,308.4	1,308.6	1,308.6	.....	1,308.5	1,308.3	1,307.6	1,307.7
31..	1,307.2	1,306.3	.....	1,307.5	.....	1,308.2	1,308.6	.....	1,308.3	.....	1,307.6	.....

a No record; gage inaccessible.

TABLE OF DISCHARGES PER SQUARE MILE
Summary of Discharge, in Second-foot per Square Mile, for all River Stations for which Data are Available in this Report

STATION	Drain- age area	1916												1917					Maintained by
		July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June						
ST. LAWRENCE RIVER BASIN																			
Cattaraugus creek at Versailles.....	Sq. mi. 467	0.685	0.261	0.193	0.287	0.683	0.604	1.45	1.70	4.10	2.21	1.73	2.44	U. S.	N. G.	S.	G. S.		
Little Tonawanda creek at Londen.....	22	0.445	0.071	0.039	0.033	0.090	0.215	0.591	1.02	4.04	2.56	1.49	3.59	U. S.	N. G.	S.	G. S.		
Genesee river at Scio.....	297	0.481	0.153	0.103	0.167	0.484	0.586	0.936	0.660	3.09	1.98	1.40	2.68	U. S.	N. G.	S.	G. S.		
" " at St. Helena.....	1,030	0.331	0.132	0.127	0.160	0.547	0.439	0.960	0.970	3.52	1.80	1.51	2.36	U. S.	N. G.	S.	G. S.		
" " at Jones bridge near Mt. Morris.....	1,410	0.491	0.165	0.140	0.162	0.419	0.416	0.844	0.908	3.05	1.60	1.32	2.17	U. S.	N. G.	S.	G. S.		
" " at Rochester.....	2,360	0.508	0.186	0.141	0.144	0.307	0.280	0.525	0.572	2.67	1.46	1.04	1.93	U. S.	N. G.	S.	G. S.		
Canasota creek near Dansville.....	167	1.10	0.290	0.237	0.118	0.196	0.131	.....	.....	2.45	0.994	1.14	4.14	U. S.	N. G.	S.	G. S.
Kesbequa creek near Sonyea.....	74	0.186	0.054	0.077	0.011	0.071	0.201	.....	.....	.....	.....	.....	.....	U. S.	N. G.	S.	G. S.
Canadice lake near Hemlock.....	12.8	0.531	0.424	0.073	0.008	0.165	0.288	0.292	0.312	1.203	2.03	1.045	1.609	U. S.	N. G.	S.	G. S.		
Oswego river at Minetto.....	5,091	1.068	0.453	0.301	0.465	0.494	0.722	0.775	0.756	1.611	2.132	1.180	2.70	U. S.	N. G.	S.	G. S.		
Canandaigua outlet at Alloway.....	1,548	0.629	0.329	.....	.....	0.143	0.195	1.06	1.01	2.15	2.77	1.73	2.70	U. S.	N. G.	S.	G. S.
Owasco outlet near Auburn.....	440	1.059	0.284	0.143	0.098	0.143	0.195	0.514	0.702	1.491	1.166	0.627	1.524	U. S.	N. G.	S.	G. S.		
Onondaga river at Caughdenoy.....	295	1.00	0.378	0.534	0.410	0.385	0.457	0.612	0.796	1.74	3.10	1.69	3.36	U. S.	N. G.	S.	G. S.		
Onondaga creek at Kenwood.....	1,377	1.45	0.410	0.233	0.080	0.075	1.47	1.51	1.69	2.60	4.30	2.84	2.82	U. S.	N. G.	S.	G. S.		
Black river, near Boonville.....	63	1.581	1.151	1.889	0.882	1.21	2.02	2.06	1.04	2.95	8.22	3.03	5.04	U. S.	N. G.	S.	G. S.		
Moose river at Moose River.....	1,851	0.469	0.333	0.482	0.382	1.21	2.02	2.06	1.04	2.95	8.22	3.03	5.04	U. S.	N. G.	S.	G. S.		
Middle branch of Moose river at Old Forge.....	370	1.032	0.666	0.908	0.954	1.419	2.081	1.515	1.180	2.562	6.005	2.968	2.954	U. S.	N. G.	S.	G. S.		
Beaver river at State dam near Beaver River.....	51.5	1.48	1.37	0.659	0.795	1.36	1.99	2.34	1.17	1.02	2.04	0.62	4.20	U. S.	N. G.	S.	G. S.		
Oswegatchie river near Heuvelton.....	176	1.21	1.30	2.54	2.91	1.49	2.34	1.25	1.98	2.97	3.94	2.76	4.14	U. S.	N. G.	S.	G. S.		
" " near Ogdensburg.....	961	0.779	0.520	0.419	0.625	0.820	1.32	1.35	1.30	1.23	3.91	3.34	3.19	U. S.	N. G.	S.	G. S.		
" " at Newton Falls.....	1,580	0.454	0.428	0.257	0.392	0.535	1.22	1.03	1.52	1.54	2.11	1.83	2.17	U. S.	N. G.	S.	G. S.		
Raquette river at Pierceland.....	245	0.735	0.355	0.368	0.782	1.22	2.05	1.43	1.52	1.54	2.11	2.58	2.09	U. S.	N. G.	S.	G. S.		
St. Regis river at Massena Springs.....	723	0.907	0.073	0.260	0.354	0.665	2.01	1.31	0.907	3.91	5.97	2.71	2.34	U. S.	N. G.	S.	G. S.		
Deer river at Brasher Center.....	1,200	0.850	0.565	0.322	0.577	0.495	1.69	1.15	0.860	0.953	4.97	4.30	4.18	U. S.	N. G.	S.	G. S.		
Ansable river at Ansable Forks.....	921	0.650	0.353	0.302	0.731	0.749	0.936	0.623	0.535	1.90	.....	.....	.....	U. S.	N. G.	S.	G. S.
Saranac river near Flatbush.....	444	0.472	0.232	0.251	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S.	N. G.	S.	G. S.
" " at Spier Falls.....	607	1.51	0.482	0.626	0.752	0.905	1.07	0.635	0.491	1.49	4.08	3.04	3.03	U. S.	N. G.	S.	G. S.		
" " at Spier Falls.....	607	1.08	0.649	0.514	0.595	0.867	0.936	0.878	0.787	1.66	3.64	1.75	2.11	U. S.	N. G.	S.	G. S.		
HUDSON RIVER BASIN																			
Hudson river near Indian Lake.....	418	0.285	0.634	1.36	1.92	0.702	0.585	0.702	0.585	1.05	.....	.....	.....	U. S.	N. G.	S.	G. S.
" " at North Creek.....	804	1.02	1.09	1.08	0.942	1.39	0.968	0.968	1.05	1.63	.....	.....	.....	U. S.	N. G.	S.	G. S.
" " at Thurman.....	1,560	0.929	0.765	0.703	0.601	0.890	1.28	0.761	0.800	1.23	5.55	3.48	5.50	U. S.	N. G.	S.	G. S.		
" " at Spier Falls.....	2,800	0.911	0.511	0.643	0.543	0.904	1.55	0.907	0.697	1.86	6.40	2.96	4.27	U. S.	N. G.	S.	G. S.		

CLIMATOLOGICAL DATA

On the following pages there are published certain records of precipitation at stations throughout the state maintained either by the Department of the State Engineer, by the United States Weather Bureau in coöperation with the Department of the State Engineer, by the Board of Water Supply of New York city or by private corporations or individuals. In connection with each record acknowledgment is made when due.

Those records showing daily precipitation and located in the Barge canal zone are grouped according to the watersheds and arranged in order similar to that of the stream gaging stations.

Stations maintained by the Board of Water Supply are located in territory adjacent to present or possible future sources of water-supply for New York city and are given under the headings "Catskill Watersheds," and "Watersheds at Large," and show monthly totals only.

The precipitation given under any date is the amount occurring during the twenty-four hours ending at 8 A. M. of that date. Precipitation records here given are not intended to embrace all data available, but only such data collected wholly or in part by the State of New York or that is available through the efforts of others than the United States Weather Bureau, whose publications should be consulted in connection with any study made of rainfall or run-off.

OSWEGO RIVER WATERSHED

Daily precipitation, in inches, at SOUTH GRANBY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1.....			0.02				*0.04		
2.....	0.70							*0.12	
3.....								*0.08	
4.....						0.44	*0.09	*0.11	*0.04
5.....					0.80				
6.....							0.26	*0.70	*0.09
7.....									
8.....								*0.04	0.02
9.....		0.70						*0.06	0.06
10.....				0.54	0.24	0.38	0.38	*0.19	
11.....				0.02			*0.09	*0.05	0.08
12.....		0.48						*0.07	
13.....						*0.11			
14.....				0.40	*0.18		*0.74		
15.....			0.98				*0.04		0.10

CLIMATOLOGICAL DATA: PRECIPITATION RECORDS 433

Daily precipitation, in inches, at SOUTH GRANBY, for the year ended June 30, 1917

— *Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
16.....	0.11	.....	.....	.....	.....	*0.02	.....
17.....	*0.09	.....	*0.06	.....
18.....	0.03	*0.11	.....	*0.03	.....	0.11
19.....	*0.01	*0.05	.....	*0.01
20.....	0.31	.....	.....	.....	0.08	.....
21.....	0.38	.....	*0.06	.....	.....	.....
22.....
23.....	0.30	.....	.....	.....	*0.11	*0.02	.....	.....
24.....	0.23	.....	0.31	.....	.....	*0.13	.....
25.....	0.84	.....	*0.21	.....	.....	*0.09	.....
26.....	0.04	0.02	0.09	.....	*0.10	.....	*0.02	0.05	.....
27.....	0.08	.....	.....	.....	*0.03	.....	0.06
28.....	0.34	.....	0.09	.....	0.31	*0.02	0.05	.....
29.....	0.02
30.....	0.47	.....	0.24	*0.06	.....	.....	.....
31.....	0.06	.....	.....	.....	*0.04	.....	.....	.....
Total.....	0.74	1.90	2.82	1.77	2.19	2.02	1.81	1.79	0.61

* Snow.

Note.—Station discontinued.

HUDSON RIVER WATERSHED

Daily precipitation, in inches, at CORINTH, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	.....	.....	.....	.....	0.30	.....	.....	0.25	.....	0.10	0.15	.....
2.....	.....	.....	.....	.....	.....	.....	.....	0.05	.....	0.05	0.55	0.05
3.....	1.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4.....	0.80	.....	.....	.....	.....	.....	0.80	.....	.....	.....	0.20	.....
5.....	.....	.....	.....	.....	0.30	.....	.....	0.14	0.45	.....	0.60	.....
6.....	.....	.....	0.50	.....	0.10	0.30	0.80	0.05	0.16	0.46	.....	0.18
7.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.35
8.....	.....	.....	.....	.....	.....	.....	.....	.....	0.23	.....	.....	0.52
9.....	0.60	0.30	.....	.....	.....	.....	.....	0.20	.....	.....	.....	0.10
10.....	.....	.....	.....	.....	0.10	0.48	.....	0.40	.....	.....	.....	.....
11.....	.....	.....	.....	.....	.....	.....	0.30	.....	0.29	.....	.....	0.94
12.....	.....	0.18	.....	.....	.....	.....	.....	.....	0.51	.....	.....	3.20
13.....	.....	0.05	.....	.....	.....	0.20	.....	.....	.....	.....	.....	.....
14.....	0.40	.....	.....	0.70	0.58	.....	0.97	.....	.....	.....	.....	.....
15.....	.....	.....	1.00	.....	.....	.....	0.24	.....	0.40	.....	.....	.....
16.....	.....	.....	0.32	.....	.....	0.10	.....	.....	.....	.....	.....	0.20
17.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18.....	0.30	.....	.....	.....	0.30	.....	.....	.....	0.60	.....	.....	.....
19.....	.....	.....	0.08	.....	.....	.....	.....	.....	.....	.....	.....	.....
20.....	.....	.....	.....	1.20	.....	.....	.....	0.53	.....	0.15	.....	.....
21.....	.....	.....	.....	0.60	.....	0.06	.....	.....	.....	0.55	.....	0.28
22.....	1.10	.....	.....	.....	.....	.....	0.52	.....	.....	.....	.....	.....
23.....	0.10	.....	0.15	.....	.....	0.60	.....	0.05	.....	.....	0.25	.....
24.....	.....	0.30	.....	.....	1.40	.....	.....	.....	0.20	0.10	0.18	0.85
25.....	.....	.....	.....	.....	.....	0.07	.....	.....	.....	.....	0.10	0.05
26.....	0.28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27.....	0.10	0.06	.....	.....	.....	.....	.....	1.15	.....	0.08	.....	0.08
28.....	0.60	.....	.....	.....	.....	.....	0.11	.....	0.50	.....	.....	.....
29.....	.....	0.40	.....	.....	.....	.....	.....	.....	0.09	.....	0.80	0.58
30.....	.....	.....	0.70	.....	1.12	.....	0.11	.....	.....	0.10	0.28	0.65
31.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total...	5.38	1.29	2.75	2.50	4.20	1.81	3.85	2.82	3.43	1.59	3.11	8.03

Maintained by the U. S. Weather Bureau in cooperation with this Department.

Daily precipitation, in inches, at GLENS FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	.....	.....	.....	.....	0.21	.....	.....	.....	.....	0.15	0.11	.....
2.....	.....	.....	0.03	.....	.....	.....	.....	0.18	.....	0.04	0.41	.....
3.....	0.88	.....	.....	.....	0.02	.....	.....	.....	.....	.....	.....	.....
4.....	0.30	0.12	.....	.....	.....	.....	0.79	.....	.....	.....	.....	.....
5.....	0.02	.....	.....	.....	0.40	0.14	.....	0.12	0.60	.....	0.35	.....
6.....	.....	.....	0.38	.....	0.11	.....	0.86	0.04	0.10	0.20	0.36	0.12
7.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.23	.....	0.24
8.....	.....	0.14	.....	.....	.....	.....	.....	.....	0.22	.....	.....	0.46
9.....	0.83	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.20
10.....	.....	.....	.....	0.02	.....	0.42	.....	0.51	.....	.....	.....	.....
11.....	0.23	.....	.....	.....	.....	.....	0.38	.....	0.36	.....	.....	0.81
12.....	.....	0.17	.....	.....	.....	.....	.....	.....	0.25	.....	.....	1.89
13.....	.....	0.07	.....	.....	.....	0.22	.....	.....	.....	.....	.....	.....
14.....	0.75	.....	.....	0.31	0.80	.....	0.98	.....	.....	.....	.....	.....
15.....	.....	.....	1.02	.....	.....	.....	0.14	.....	0.30	.....	.....	0.09
16.....	.....	.....	0.33	.....	.....	0.10	.....	.....	.....	.....	.....	0.08
17.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.05
18.....	.....	.....	.....	.....	0.06	.....	.....	.....	0.36	.....	.....	.....
19.....	.....	.....	0.03	.....	.....	.....	.....	.....	.....	.....	.....	.....
20.....	.....	.....	.....	1.08	.....	.....	.....	0.42	.....	0.30	.....	.....
21.....	.....	.....	.....	0.43	.....	0.03	.....	.....	.....	0.33	.....	0.06
22.....	0.47	.....	0.04	.....	.....	.....	0.32	.....	.....	.....	0.08	.....
23.....	0.07	.....	0.16	.....	.....	0.97	.....	.....	.....	.....	0.12	.....
24.....	.....	1.09	0.32	.....	1.10	.....	.....	.....	0.07	.....	0.19	0.75
25.....	.....	.....	.....	.....	.....	0.06	.....	.....	.....	.....	0.12	.....
26.....	0.17	0.01	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27.....	.....	.....	.....	.....	.....	.....	.....	0.80	.....	0.10	.....	0.11
28.....	.....	.....	.....	.....	.....	0.15	0.11	.....	0.44	.....	.....	.....
29.....	.....	0.32	.....	.....	.....	.....	.....	.....	0.04	.....	0.70	0.35
30.....	0.55	1.09	0.04	0.49	0.44
31.....
Total...	3.72	1.92	2.86	1.84	3.79	2.19	3.82	2.07	2.74	1.35	2.93	5.65

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Daily precipitation, in inches, at MECHANICVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	.....	.....	.....	.....	0.41	T	.....	0.18	.....	0.19	0.15	.....
2.....	.....	.....	0.48	.....	.....	.....	.....	.....	.....	.....	0.27	T
3.....	0.84	.....	.....	.....	0.01	.....	0.45	.....	.....	.....	0.02	0.03
4.....	0.34	0.03	.....	.....	.....	.....	.....	.....	0.10	.....	.....	.....
5.....	0.02	0.04	.....	.....	0.68	0.23	0.28	0.17	0.35	.....	0.62	.....
6.....	.....	.....	0.61	.....	0.27	0.10	.....	0.08	0.09	0.08	0.45	0.21
7.....	.....	.....	0.01	.....	.....	0.08	.....	.....	0.10	0.43	.....	0.44
8.....	.....	.....	0.01	.....	.....	.....	.....	T	0.10	.....	0.01	0.75
9.....	.....	.....	0.35	.....	.....	.....	0.03	.....	T	.....	0.01	T
10.....	T	0.66	.....	0.18	0.07	0.33	0.02	0.22	.....	.....	0.03	0.09
11.....	0.03	.....	.....	.....	.....	.....	.....	.....	0.47	.....	0.01	0.16
12.....	.....	0.17	.....	.....	.....	0.10	.....	.....	0.26	T	.....	0.91
13.....	.....	0.18	.....	.....	.....	0.23	0.33	.....	.....	.....	0.02	.....
14.....	0.75	.....	.....	.....	0.44	T	0.10	.....	.....	.....	.....	.....
15.....	.....	.....	1.74	.....	.....	T	.....	.....	0.19	.....	.....	0.56
16.....	.....	.....	0.81	.....	.....	0.14	.....	.....	.....	.....	.....	0.06
17.....	0.08	.....	.....	0.03	.....	.....	.....	.....	.....	.....	.....	.....
18.....	0.02	.....	0.01	.....	.....	.....	.....	.....	0.08	.....	.....	.....
19.....	.....	.....	0.06	.....	.....	.....	.....	.....	.....	.....	.....	0.02
20.....	.....	.....	.....	1.04	.....	.....	.....	0.19	.....	0.27	.....	.....

CLIMATOLOGICAL DATA: PRECIPITATION RECORDS 435

Daily precipitation, in inches, at MECHANICVILLE, for the year ended June 30, 1917

— Continued

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	0.03	.....	.....	0.73	.....	0.04	0.40	0.05	.....	0.22	.....	0.02
22.....	0.04	.....	0.05	.....	.....	T	.....	.....	.....	T	0.16	.....
23.....	.....	.....	0.04	.....	.....	0.85	.....	0.02	.....	.....	0.22	.....
24.....	0.02	0.43	1.19	.....	0.40	.....	.....	0.03	0.10	.....	0.03	0.77
25.....	.....	.....	.....	.....	T	.....	.....	.....	.....	.....	T	0.02
26.....	0.08	0.02	T	T	T	.....	0.09	.....	.....	.....	.....	0.02
27.....	0.07	0.29	0.04	.....	.....	.....	.....	0.55	.....	0.14	0.04	0.40
28.....	T	0.05	.....	.....	.....	0.23	.....	.....	0.33	.....	0.05	.....
29.....	.....	0.25	.....	.....	0.04	.....	0.15	.....	.....	.....	1.03	0.22
30.....	0.61	0.68	0.06	0.27	0.41
31.....	0.08
Total...	2.32	2.20	6.01	1.98	3.00	2.33	1.85	1.49	2.17	1.39	3.39	5.00

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T means trace.

Daily precipitation, in inches, at TROY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	.....	.....	.....	.....	0.59	.....	.....	0.24	.....	0.12	0.17	0.14
2.....	0.76	.....	0.24	.....	.....	T	.....	.....	.....	.....	0.17	0.26
3.....	0.21	.....	.....	.....	0.10	.....	.....	.....	.....	T	0.01	0.05
4.....	0.03	.....	.....	.....	.....	.....	0.31	.....	↑	.....	.....	.....
5.....	0.03	.....	0.58	.....	↑	0.15	.....	0.37	0.52	.....	0.68	.....
6.....	.....	.....	0.10	.....	0.79	T	0.30	T	0.11	0.26	↑	0.09
7.....	.....	.....	0.02	.....	.....	0.04	.....	.....	.....	0.33	0.20	0.54
8.....	.....	0.09	0.02	.....	.....	.....	.....	T	0.06	.....	0.02	0.46
9.....	↑	0.15	0.09	.....	.....	.....	.....	↑	.....	.....	0.04	0.03
10.....	0.60	0.33	.....	0.03	0.11	↑	T	0.32	.....	.....	0.02	↑
11.....	.....	0.33	.....	.....	.....	0.14	.....	.....	.....	.....	.....	0.28
12.....	.....	.....	.....	.....	T	0.09	.....	.....	0.59	T	0.02	0.41
13.....	0.24	0.10	.....	T	T	0.28	.....	.....	.....	.....	0.02	0.02
14.....	0.21	.....	0.10	0.10	0.27	T	0.30	T	0.19	.....	.....	0.03
15.....	.....	.....	2.01	.....	.....	0.03	.....	.....	.....	.....	.....	0.01
16.....	↑	.....	0.64	.....	.....	0.20	.....	.....	.....	.....	.....	0.08
17.....	0.41	.....	↑	0.03	.....	T	.....	.....	T	.....	.....	.....
18.....	0.01	.....	0.02	.....	.....	.....	.....	T	T	.....	.....	.....
19.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T	T
20.....	.....	.....	.....	0.91	.....	.....	.....	0.06	.....	0.45	.....	.....
21.....	0.09	.....	.....	0.33	.....	0.05	.....	.....	.....	0.10	.....	0.02
22.....	.....	.....	.....	.....	.....	T	0.43	0.15	.....	.....	0.21	.....
23.....	↑	.....	.....	.....	.....	1.09	.....	.....	.....	.....	0.11	.....
24.....	0.01	0.26	↑	.....	0.44	.....	.....	0.02	0.14	.....	0.07	.....
25.....	.....	.....	0.10	.....	0.02	.....	.....	.....	.....	.....	0.02	0.24
26.....	0.28	.....	0.12	.....	0.04	.....	0.03	0.12	.....	.....	.....	0.03
27.....	.....	↑	0.02	.....	.....	.....	.....	0.54	T	0.12	↑	0.49
28.....	.....	1.30	.....	.....	.....	0.26	0.05	.....	0.53	.....	0.15	.....
29.....	.....	0.20	.....	.....	0.02	.....	.....	.....	T	.....	0.70	0.16
30.....	.....	.....	0.59	.....	0.69	.....	0.15	.....	T	0.07	0.02	0.15
31.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total...	2.88	2.76	4.55	1.40	3.07	2.33	1.57	1.82	2.14	1.45	2.63	3.23

↑ Sunday or holiday; gage not read; amount, if any, included in following day.

T means trace.

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SACANDAGA RIVER WATERSHED

Daily precipitation, in inches, at NORTHVILLE, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	.....	.....	.....	.....	0.18	.....	.....	.....	.....	0.22	0.28	.....
2	.....	.....	0.04	.....	.....	0.11	.....	.....	.....	0.09	0.53	0.09
3	1.14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.05
4	.....	0.09	.....	.....	.....	.....	0.60	0.14	.....	.....	.....	0.10
5	.....	.....	.....	.....	0.44	0.25	.....	0.14	0.20	.....	0.35	.....
6	.....	.....	0.26	.....	0.13	0.12	0.97	.....	0.34	0.31	.....	0.08
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.18	0.35	0.21
8	.....	.....	.....	.....	.....	.....	.....	.....	0.24	.....	0.12	0.60
9	0.82	.....	0.04	.....	.....	.....	.....	0.16	.....	.....	.....	0.18
10	.....	.....	.....	.....	0.12	0.49	0.07	0.48	.....	.....	.....	0.05
11	0.18	0.17	.....	.....	.....	.....	0.31	.....	0.25	.....	.....	0.47
12	.....	.....	.....	.....	.....	0.09	.....	.....	0.55	.....	.....	1.96
13	.....	0.44	.....	.....	.....	0.11	.....	.....	.....	.....	.....	.....
14	0.39	0.16	.....	0.78	0.85	.....	1.26	.....	.....	.....	.....	.....
15	.....	.....	0.75	.....	.....	.....	.....	.....	0.26	.....	.....	0.11
16	.....	.....	0.32	.....	.....	0.15	.....	.....	.....	.....	.....	0.03
17	.....	.....	.....	0.06	.....	.....	.....	.....	.....	.....	.....	.....
18	.....	.....	.....	.....	0.10	.....	.....	.....	0.40	.....	.....	.....
19	.....	.....	0.04	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	.....	.....	.....	1.05	.....	.....	.....	0.48	.....	0.45	0.09	.....
21	.....	.....	.....	0.88	.....	0.08	.....	.....	.....	0.35	.....	0.50
22	.....	.....	0.08	.....	.....	.....	0.63	0.07	.....	.....	0.14	.....
23	.....	.....	.....	.....	.....	0.91	.....	.....	.....	.....	0.38	.....
24	.....	0.24	0.34	.....	1.32	.....	.....	0.10	0.34	.....	0.14	0.75
25	.....	.....	.....	.....	0.15	0.14	.....	.....	.....	.....	0.18	0.11
26	0.14	.....	.....	.....	.....	.....	0.05	.....	.....	.....	.....	.....
27	0.22	0.26	.....	.....	.....	.....	0.12	1.16	.....	0.08	.....	0.26
28	.....	0.16	.....	.....	.....	0.19	.....	.....	0.80	.....	.....	.....
29	.....	0.52	0.51	.....	.....	.....	.....	.....	0.08	.....	1.15	0.97
30	0.48	0.92	0.16	0.10	0.15	0.40	0.70
31
Total...	2.89	2.04	2.86	2.77	4.27	2.64	4.17	2.73	3.56	1.83	4.06	7.22

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HOOSICK RIVER WATERSHED

Daily precipitation, in inches, at HOOSICK FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	.....	.....	.....	.....	0.43	0.09	.....	0.10	.....	0.24	0.06	.....
2	.....	.....	0.45	.....	.....	.....	.....	.....	.....	0.21	.....	0.14
3	0.98	.....	.....	.....	0.09	.....	.....	.....	.....	0.02	0.02	.....
4	0.87	.....	.....	.....	.....	0.13	0.20	.....	0.07	.....	.....	0.34
5	0.04	.....	.....	.....	0.58	0.20	.....	0.20	0.42	.....	0.20	.....
6	.....	.....	0.53	.....	0.09	0.57	0.80	0.06	0.13	0.08	0.22	0.53
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.34	.....	0.47
8	.....	0.10	.....	.....	.....	.....	.....	.....	0.12	0.04	0.18	0.82
9	0.41	0.53	T	.....	.....	.....	.....	.....	.....	.....	0.14	.....
10	0.05	0.01	.....	0.12	.....	0.27	0.18	0.09	.....	.....	0.04	0.04
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.02	0.12
12	.....	0.20	.....	.....	.....	.....	.....	.....	0.26	.....	0.18	0.20
13	0.04	0.23	.....	.....	.....	0.60	.....	.....	0.34	.....	0.04	.....
14	1.40	0.02	.....	0.28	0.06	0.02	0.31	0.02	.....	.....	.....	.....
15	0.30	.....	1.02	.....	.....	.....	0.52	.....	0.08	.....	.....	.....
16	.....	.....	0.31	.....	.....	.....	.....	.....	.....	.....	.....	0.01
17	0.02	.....	.....	0.10	.....	.....	.....	.....	.....	.....	.....	.....
18	0.01	.....	0.13	.....	.....	.....	.....	.....	0.06	.....	.....	0.02
19	.....	.....	0.09	.....	.....	.....	.....	.....	.....	T	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.17	0.02	.....

CLIMATOLOGICAL DATA: PRECIPITATION RECORDS 437

Daily precipitation, in inches, at HOOSICK FALLS, for the year ended June 30, 1917
— *Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	0.16	.....	.....	0.18	.....	0.80	.....	.....	.....	0.35	.....	.....
22.....	0.36	.....	.....	.....	.....	0.65	0.11	.....	.....	0.08	0.12	.....
23.....	0.04	.....	0.51	.....	.....	0.91	0.10	.....	.....	.....	0.18	.....
24.....	.....	0.34	0.17	.....	1.24	.....	.....	.....	0.20	0.03	0.09	0.53
25.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.10	0.02
26.....	0.43	.....	.....	0.02	0.08	.....	0.07	0.12	.....	.....	0.01	0.03
27.....	0.89	0.21	.....	.....	.....	0.09	.....	0.81	.....	0.17	0.08	0.19
28.....	.....	0.62	.....	.....	.....	0.10	0.12	.....	0.74	0.02	.....	.....
29.....	.....	.....	.....	.....	0.02	.....	.....	.....	0.02	.....	0.43	0.12
30.....	.....	.....	1.25	.....	0.60	.....	0.15	.....	.....	0.07	0.24	0.38
31.....	.....	0.12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total...	6.00	2.38	4.45	0.70	3.21	4.43	2.56	1.40	2.44	1.56	2.51	3.79

T means trace.

Maintained by the U. S. Weather Bureau in cooperation with this Department.

MOHAWK RIVER WATERSHED

Daily precipitation, in inches, at ADRIAN RESERVOIR (a) NEAR UTICA, for the year
ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....	.....	.....	.....	.....	0.47	.....	.....	0.32	.....	0.31	0.21	0.08
2.....	.....	.....	0.27	.....	.....	0.15	0.08	0.02	.....	0.12	0.32	0.07
3.....	1.00	.....	.....	.....	0.10	.....	.....	.....	.....	0.33	0.08	.....
4.....	0.35	0.32	.....	.....	0.10	0.04	0.35	0.04	.....	.....	0.03	0.02
5.....	0.40	.....	.....	.....	0.60	0.29	.....	0.05	0.05	.....	0.43	.....
6.....	.....	.....	0.10	.....	.....	0.08	0.25	0.03	0.40	0.44	0.55	0.22
7.....	.....	.....	0.17	.....	.....	0.16	.....	0.02	0.08	0.30	0.07	0.31
8.....	.....	.....	0.29	.....	.....	.....	.....	0.02	0.02	.....	0.02	0.59
9.....	.....	0.15	0.05	0.05	.....	.....	.....	0.05	0.03	.....	.....	0.20
10.....	.....	.....	.....	0.06	0.25	0.45	0.13	0.07	0.05	.....	0.08	0.02
11.....	0.03	.....	.....	.....	.....	.....	.....	0.08	.....	.....	.....	3.00
12.....	.....	0.50	.....	.....	.....	0.02	.....	.....	0.45	.....	0.22	0.43
13.....	.....	0.19	.....	0.02	.....	0.28	.....	.....	.....	.....	0.04	.....
14.....	0.45	.....	.....	0.06	.....	0.05	0.47	0.02	.....	.....	.....	0.28
15.....	.....	.....	1.67	.....	.....	.....	0.05	0.02	0.05	0.07	.....	0.38
16.....	.....	.....	0.46	.....	0.03	0.04	.....	0.10	0.10	0.05	.....	0.45
17.....	.....	.....	.....	0.21	.....	0.04	.....	.....	.....	.....	0.17	0.10
18.....	.....	.....	.....	.....	0.11	.....	.....	.....	.....	.....	.....	.....
19.....	.....	.....	.....	.....	.....	0.02	0.08	.....	.....	0.10	0.35	0.12
20.....	.....	.....	.....	0.30	.....	.....	.....	0.17	.....	0.29	.....	.....
21.....	.....	.....	.....	0.78	.....	.....	.....	0.05	.....	0.44	0.23	0.98
22.....	.....	.....	0.19	.....	.....	.....	0.15	0.06	0.15	0.02	0.21	.....
23.....	.....	.....	0.87	.....	.....	1.10	0.03	.....	.....	.....	0.08	0.02
24.....	.....	0.17	0.11	.....	0.46	.....	.....	.....	.....	.....	0.28	0.42
25.....	.....	.....	0.12	.....	0.20	0.13	.....	.....	0.20	.....	.....	0.16
26.....	0.05	.....	0.07	0.19	0.20	.....	0.02	0.08	.....	0.08	.....	0.05
27.....	0.06	0.17	0.37	.....	.....	0.06	0.07	0.84	.....	0.29	0.04	0.43
28.....	0.07	0.14	.....	.....	.....	0.32	0.04	.....	0.39	0.02	1.03	.....
29.....	.....	0.36	0.07	.....	.....	0.04	.....	.....	.....	.....	.....	0.35
30.....	.....	.....	0.45	.....	0.43	.....	0.22	.....	0.25	0.12	0.17	0.27
31.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total...	2.41	2.00	5.26	1.67	2.98	3.27	1.97	2.02	2.23	2.98	4.64	8.93

a Formerly Savage reservoir.

Supplied by the Consolidated Water Company of Utica.

Daily precipitation, in inches, at DEERFIELD RESERVOIR, UTICA, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					0.43	0.03		0.20		0.13	0.20	
2			0.26			0.11	0.08	0.02		0.11	0.32	0.12
3	1.95				0.04					0.32	0.15	
4	0.30	0.19			0.03		0.31	0.02			0.02	0.03
5	0.30				0.64	0.40		0.04	0.25		0.33	
6			0.26			0.07	0.21	0.02	0.12	0.15	0.41	0.20
7						0.05			0.01	0.26	0.11	0.33
8			0.12						0.13		0.04	0.58
9		0.14	0.04					0.02	0.09			0.48
10				0.07	0.26	0.38	0.09	0.07			0.14	0.04
11	0.02						0.04	0.05	0.22			2.52
12						0.04			0.38		0.34	0.41
13		0.20		0.05		0.10	0.01				0.07	
14	0.54			0.88	0.18	0.05	0.18	0.10				0.06
15			1.34			0.02	0.05		0.19	0.02		0.27
16			0.55		0.04			0.06	0.03	0.02		0.65
17				0.10	0.01						0.14	0.05
18			0.12		0.05	0.01			0.12			
19			0.03	0.05			0.03		0.02	0.08	0.35	0.02
20				0.16			0.01	0.30		0.34		
21				0.93				0.01	0.03	0.20	0.29	1.19
22			0.27			0.05	0.23	0.06		0.02	0.12	0.02
23			0.76			0.75	0.23				0.08	
24		0.10	0.11		0.40				0.29	0.03	0.32	0.47
25			0.17		0.10	0.16					0.01	0.14
26	0.94		0.09	0.11	0.15		0.02				0.02	
27	0.55	0.63	0.23			0.10	0.04	0.08		0.33		0.42
28		0.07		0.03			0.01	0.84	0.31		1.41	
29		0.35	0.10		0.03	0.01						0.58
30			0.52		0.28		0.30		0.03	0.13	0.14	0.33
31		0.12										
Total...	4.60	1.80	4.97	2.38	2.64	2.33	1.84	1.89	2.22	2.14	5.01	8.91

Supplied by the Consolidated Water Company of Utica.

Daily precipitation, in inches, at GRAEFENBURG (RESERVOIR NO. 1), NEAR UTICA.
for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					0.25			0.15		0.20	0.20	
2			0.18			0.03	0.05			0.22		0.10
3	0.80				0.05					0.25	0.07	
4	0.20	0.10			0.06	0.05	0.52	0.04			0.03	
5	0.60		0.02		1.15	0.30			0.38		0.50	
6					0.05	0.05	0.30	0.10	0.18	0.25	0.60	0.25
7			0.62			0.06		0.04	0.02	0.22	0.10	0.30
8			0.10						0.05			0.58
9		0.10		0.05					0.09			0.08
10				0.06	0.20	0.40	0.07	0.11	0.02		0.10	
11							0.05	0.02	0.30			1.90
12		0.30							0.28		0.19	0.35
13		0.20				0.12						
14	0.52			0.40	0.60	0.05	0.90	0.04				0.08
15			1.75						0.35			
16			0.25		0.05	0.04			0.02			0.38
17				0.12							0.10	0.10
18					0.06	0.04			0.26			
19									0.02	0.10	0.35	0.05
20				0.20		0.03				0.40		

CLIMATOLOGICAL DATA: PRECIPITATION RECORDS 439

Daily precipitation, in inches, at GRAEFENBURG (RESERVOIR No. 1), NEAR UTICA
for the year ended June 30, 1917 — *Continued*

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....				0.40				0.05	0.13	0.35	0.27	0.42
22.....			0.08				0.08				0.15	
23.....			0.80			0.60	0.10				0.05	
24.....		0.12			0.45				0.24	0.04	0.20	0.40
25.....	0.15		0.06		0.08							0.22
26.....	0.06			0.08	0.09	0.08	0.04	0.08		0.05		
27.....	0.05		0.40				0.04	0.90		0.30	0.10	0.35
28.....	0.30	0.06				0.40	0.02		0.39		0.95	
29.....		0.28	0.05		0.04	0.05						0.30
30.....			0.40		0.25	0.04	0.22		0.25	0.05	0.10	0.25
31.....		0.02										
Total...	2.68	1.18	4.71	1.31	3.38	2.34	2.39	1.53	2.98	2.21	4.28	6.11

Supplied by the Consolidated Water Company of Utica.

Daily precipitation, in inches, at GENESEE ST. BRIDGE, UTICA, for the year ended
June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1.....					0.48			0.15		0.47	0.19	0.20
2.....			0.22			0.15	0.11	0.06	T	0.33	0.38	0.05
3.....	2.02				0.06			0.05	T	0.11	0.11	
4.....	0.59	0.22			0.09		0.49	0.11			0.04	0.02
5.....	0.02		T		0.70	0.26	0.01	0.22	0.40		0.41	
6.....			0.38			0.06	0.18	0.12	0.21	0.44	0.42	0.21
7.....			0.02			0.18		0.10	0.13	0.24	0.10	0.41
8.....			0.15						0.02		0.03	0.72
9.....	T	0.22	0.10	0.05				0.03	0.09		0.01	0.25
10.....	0.04			0.04	0.28	0.38	0.11	0.17	0.10	0.02	0.04	
11.....							0.01	0.10	0.11		0.02	2.95
12.....		0.22				0.04			0.24	0.02	0.22	0.42
13.....	T	0.21		0.09		0.14	0.03			0.01	0.07	
14.....	0.71	T		0.72	1.07	0.02	0.84	0.02		0.04		0.09
15.....	T		1.15		T	T	0.08	0.03	0.34	0.06		0.29
16.....			0.05		0.16	0.08	0.01	0.01	0.09	0.04		0.54
17.....	0.02			0.18	0.08	0.03	0.01	0.03		0.03	0.19	0.05
18.....			0.03	0.05	0.08	T	0.01		0.20			
19.....			0.01	0.02		0.03	0.13		0.05	0.17		0.04
20.....				0.22		0.05		0.28	T	0.29	0.36	
21.....				1.01		0.05		0.12	0.21	0.39		1.57
22.....			0.33	0.02		0.04	0.28	0.15		0.03	0.38	0.01
23.....	0.14		0.71			0.95	0.05	0.04		0.02	0.12	T
24.....		0.19	0.10		0.34	0.09		0.01	0.17	0.08	0.09	0.42
25.....			0.11		0.23	0.30		0.01			0.40	0.12
26.....	0.02		0.04	0.14	0.33	0.04	0.04	0.06		0.07	T	T
27.....	0.20	0.57	0.29			0.06	0.01	0.65		0.30	0.04	0.46
28.....	0.04	0.09		0.04		0.25	0.06		0.35	0.01	T	
29.....		0.27	0.11		0.06	0.04			0.06		1.33	0.50
30.....			0.43		0.22	0.02	0.14		0.09	0.13	0.22	0.60
31.....		0.03				0.04						
Total...	3.80	2.04	4.23	2.58	4.18	3.30	2.60	2.52	2.86	3.30	5.09	9.52

T means trace.

Maintained by the U. S. Weather Bureau in coöperation with this Department.

Daily precipitation, in inches, at TRIBES HILL, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					0.24		0.40			0.25		0.10
2			0.40					0.20			0.53	
3	0.65				0.20						0.24	
4	0.28											
5		0.40			0.80	0.50		0.40				
6			0.50			0.20	0.32		0.80		1.04	
7			0.30							0.80		0.35
8												0.85
9	0.37	0.42										0.20
10		0.15		0.35	0.24	0.32		0.40				
11		0.24							0.50			0.43
12							0.20		1.70			3.01
13	0.12	0.20				0.20						
14					0.40		0.70					
15			1.50			0.10			0.30			0.17
16												
17				0.17								
18	0.60								0.70			
19												0.16
20				0.50				0.20		0.63	0.40	
21				0.90								
22							0.30	0.40				
23			0.35			1.40						
24		0.10			0.80				0.25		0.40	1.00
25						0.20						0.10
26				0.30	0.04							
27	0.21					0.32		1.05	0.40		0.20	0.50
28							0.10					
29					0.10							0.50
30		0.30	0.55				0.85			0.20	1.50	0.49
31	0.12											
Total...	2.35	2.31	3.60	2.15	2.82	3.24	2.87	2.65	4.65	1.88	4.31	7.89

Maintained by the United States Weather Bureau.

WEST CANADA CREEK WATERSHED

Daily precipitation, in inches, at HOFFMEISTER, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1			†		T					0.13	0.56	0.34
2	0.73		0.49		\$0.15	*0.23	0.00	0.24		0.04	0.10	0.10
3	T	0.41			†		0.29		0.07		0.05	0.15
4					0.18	†		0.14	0.75			
5			0.25			\$0.52	0.40		0.70	0.08	0.12	0.12
6						*0.12		0.03			T	0.16
7	0.27	0.20	0.11						0.19		0.34	0.95
8		0.48	T	0.04				0.18	0.28			0.44
9				0.02	0.41	\$0.31	0.38	0.29			T	
10	0.06					† T		0.05		T	T	1.21
11		0.32				*0.15			0.82		0.31	0.81
12						*0.15					0.18	
13	0.47	0.22		1.40	\$1.28		1.48	0.09		T	T	
14			1.50			*0.06	0.12		0.30			0.27
15			0.43			*0.11				0.07		0.27
16	0.02			0.23	†			0.03			T	T
17					*0.17							
18			T				0.28		0.70	T	T	0.04
19			0.12				T	0.41		0.46	0.38	
20				0.71			0.04		0.10			0.71

CLIMATOLOGICAL DATA: PRECIPITATION RECORDS 441

Daily precipitation, in inches, at HOFFMEISTER, for the year ended June 30, 1917
— Continued

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
21.....	0.02			0.82			0.46			0.05		
22.....	0.42		1.60			*1.09	0.05					T
23.....	0.05	0.06	0.26		1.92	*0.02		0.30	0.91	0.30	1.71	0.51
24.....			0.09		*0.17							0.05
25.....			T	0.32		*0.16	0.08				0.09	T
26.....	0.12	†	0.24					1.08		0.31		0.20
27.....	0.30	1.00		0.05		†	0.05		1.14	T		
28.....		0.51	0.24		T	*0.25					0.73	
29.....			0.52		0.89		0.20				0.09	1.56
30.....			T							0.38		0.03
31.....				0.48			0.20		0.19			
Total...	2.46	3.20	5.85	4.07	5.17	3.17	4.12	2.81	6.45	1.82	4.66	7.82

* Snow. † Included in following day. ‡ Snow and rain. e Estimated. T means trace.

Daily precipitation, in inches, at GRAY, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....					0.66		16.....			0.29			0.03
2.....			0.59		0.18		17.....				0.11		
3.....	1.41				0.15		18.....					0.31	
4.....	0.14	0.07					19.....			0.06		0.06	
5.....	0.02				0.58	0.53	20.....				0.46	0.06	
6.....			0.49			0.12	21.....				0.99	0.06	0.27
7.....						0.30	22.....	0.03		0.40		0.05	
8.....		0.05	0.19				23.....	0.10		1.14		0.04	0.80
9.....		0.03	0.27				24.....	0.03	0.08	0.09			0.04
10.....				0.02	0.32	0.44	25.....			0.04		1.48	0.21
11.....	0.16						26.....	0.04			0.13	0.51	
12.....		0.29				0.03	27.....	1.87	0.25	0.13		0.18	
13.....		0.18				0.21	28.....	0.24	0.16		0.03	0.05	0.33
14.....	0.27	0.04		1.43	0.87		29.....		0.40	0.25		0.14	0.06
15.....			1.92				30.....			0.52		0.76	
							31.....						
Total...							Total...	4.31	1.55	6.38	3.17	6.28	3.58

This station discontinued December 31, 1916.
Supplied by the Consolidated Water Company of Utica.

Daily precipitation, in inches, at TRENTON FALLS, for the year ended June 30, 1917

DAY	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1					0.45	T	T	0.18		0.30	0.09	
2			0.52			0.37	0.02	T		0.13	0.30	0.41
3	1.73				0.32						0.40	
4	0.02	0.20			0.42	T	0.36	0.05	0.23			0.06
5						0.73		T	0.26		0.15	
6			0.07			0.05	0.18	T		0.14	0.30	0.19
7			0.08			0.12		T	0.13		0.15	0.04
8		0.15						T	0.15	T	0.06	0.83
9	0.31	0.13	0.07				T	T	T			0.82
10		0.15		T	0.37	0.40	0.14	0.26	0.34			0.05
11	0.03						0.15	0.04	0.46		0.09	2.10
12		0.26	0.08			T	T				0.26	0.35
13		0.20	0.09			0.16	0.07				0.12	
14	0.31			1.70	0.65	0.05	0.90	0.01	0.21			
15			1.80			T	T		0.10			0.40
16			0.75		T	0.08			0.13			0.15
17	0.02			0.20	0.05		T	0.02	0.34		0.24	0.30
18					0.10		0.05		T			
19			0.13				0.07					0.05
20				0.35		0.15	T	0.45	T	0.10	0.26	0.08
21				1.15			T			0.30		0.42
22		0.12	0.28				0.05	0.06		0.30	0.34	T
23	1.75	0.15	0.78			0.63	T	T	0.95		0.30	
24		0.29	0.15		1.37	0.05					0.05	0.54
25			T		0.35	0.15		T			0.29	T
26			0.05	0.10	0.06		0.03	0.20				
27	0.45	0.52	0.12				T	0.07	0.45	0.33		0.37
28	0.20	T	0.45	0.05		0.33	0.03		0.07			
29		0.38	0.51		T	0.05			0.05		0.32	0.48
30					0.65		0.25			0.09	0.12	0.62
31		T										
Total...	4.82	2.55	5.93	3.55	4.70	3.32	2.30	1.37	3.87	1.69	3.90	8.29

T means trace.

Maintained by the U. S. Weather Bureau in cooperation with this Department.

CATSKILL WATERSHEDS

Stations maintained by the Board of Water Supply of New York city.

Monthly rainfall, in inches, on CATSKILL WATERSHEDS, for the year ended June 30, 1917

STATION	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
ESOPUS CREEK												
Phoenicia.....	7.83	2.16	4.60	3.57	4.09	2.92	4.60	2.06	3.66	2.84	4.40	7.32
Slide Mountain.....	7.31	2.38	6.04	3.81	5.28	4.06	4.88	2.72	4.61	3.58	5.18	7.64
Highmount.....	7.92	2.51	4.24	1.99	3.63	2.00	2.94	1.08	2.75	2.28	4.26	7.92
Edgewood.....	9.08	3.69	4.77	3.18	4.73	2.66	4.61	1.83	3.80	2.34	5.00	6.16
Lake Hill.....	7.40	1.68	4.25	3.01	4.62	3.08	4.70	1.90	3.16	2.04	3.91	8.73
Overlook Mt.....	6.24	2.22	3.52	2.77	5.18	3.14	4.76	1.77	3.24	2.30	4.62	6.96
Kingston.....	5.99	1.82	4.91	1.78	3.82	3.12	3.57	2.80	3.15	2.34	3.82	4.45
West Hurley.....	6.72	1.41	4.49	3.58	4.00	2.74	3.46	2.18	2.95	2.19	3.08	5.53
Brown Station.....	9.74	1.20	3.80	3.04	4.20	2.85	3.60	2.45	3.10	2.01	3.38	5.80
Ashokan.....	8.91	1.36	4.28	3.10	4.44	3.20	4.18	2.72	3.45	2.12	3.56	6.41
Moonhaw.....	10.52	1.67	4.24	3.22	4.94	2.92	4.28	2.59	4.68	2.76	4.96	6.41
High Point.....	9.04	1.51	3.09	3.20	4.37	2.85	.....	.....	.....	.....	.....	.....
Zena.....	6.73	2.03	4.16	2.83	3.22	2.80	3.72	2.34	3.34	2.70	4.00	6.06
Beechford†.....	8.33	1.62	3.50	3.08	4.17	2.80	3.98	2.12	*	*	*	5.56
RONDOUT CREEK												
Grahamsville.....	10.30	2.54	6.03	3.73	3.76	3.45	3.92	2.64	3.52	1.81	2.62	6.55
Bull Run.....	9.25	1.71	5.58	3.07	3.53	3.51	4.11	3.01	4.08	2.18	3.10	7.00
Peekamoose.....	9.62	1.48	5.22	3.63	5.25	3.71	4.74	3.30	4.68	2.80	4.60	7.52
Lackawack.....	8.73	2.22	4.12	3.42	3.25	3.83	3.43	2.34	3.44	2.08	3.14	5.77
Claryville.....	7.48	2.98	5.62	2.37	3.94	3.57	4.02	2.50	3.89	1.87	3.16	6.94
High Falls.....	7.20	1.81	3.70	1.80	3.59	3.91	3.88	2.42	3.07	1.81	3.16	4.76
Rosendale.....	6.45	2.45	4.21	1.71	3.69	2.92	3.93	2.73	3.39	2.62	3.65	4.30
SCHOHARIE CREEK												
Windham.....	6.27	4.78	3.94	1.72	2.93	1.91	1.98	1.02	2.31	1.60	3.96	4.96
Haines Falls.....	8.01	5.74	3.84	2.93	3.39	2.28	5.39	1.58	3.04	1.86	4.43	5.42
Lexington.....	6.76	3.89	4.10	2.03	2.93	2.14	2.63	1.20	2.30	1.54	3.99	6.72
Prattsville.....	4.74	4.48	5.02	1.74	3.28	2.10	2.43	1.40	2.84	1.84	3.92	5.48
Grand Gorge†.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.90	5.56
CATSKILL CREEK												
Preston Hollow.....	3.48	2.58	3.45	1.90	2.32	2.22	1.36	1.16	2.81	2.00	4.43	2.76
Oak Hill.....	4.40	4.05	3.52	1.64	2.80	2.10	1.90	2.12	3.12	2.42	4.46	3.28
Franklinton.....	3.75	4.16	4.05	1.80	2.92	2.28	2.33	1.70	2.08	2.11	3.70	5.28
Westerlo.....	4.19	2.91	3.39	2.02	2.82	1.99	1.24	1.31	2.13	2.21	4.03	3.77

* No record.

† Badger weighing gage discontinued and standard 8-inch U. S. W. B. gage installed at Coldbrook on May 19; elevation, 645.

‡ First 12-inch tipping-bucket gage established May 2; elevation, 1,430.

§ Discontinued June 6.

* Brown Station record.

REPORT OF STATE ENGINEER

Mean monthly rainfall, in inches, on CATSKILL WATERSHEDS

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for year
ESOPUS CREEK — ABOVE OLIVE BRIDGE DAM													
1906.....	2.85	2.26	4.80	3.85	5.01	6.16	4.42	3.76	3.18	5.47	2.26	4.08	48.10
1907.....	2.59	1.66	1.20	2.17	3.83	3.45	3.13	1.17	11.49	6.78	7.06	5.80	50.33
1908.....	3.49	6.40	2.93	2.98	9.23	2.29	6.32	2.04	2.46	4.21	0.57	2.58	45.50
1909.....	4.82	6.97	4.35	5.20	4.44	4.38	2.06	4.83	4.17	1.40	1.98	4.67	49.27
1910.....	7.61	4.37	0.93	10.18	2.95	4.59	2.02	3.93	5.21	1.02	3.70	2.30	48.81
1911.....	2.60	1.94	3.90	2.37	1.06	5.94	3.19	4.83	4.25	7.50	3.50	2.91	43.99
1912.....	2.38	2.96	5.96	5.76	4.36	1.72	3.25	7.47	3.41	4.84	4.70	50.92	
1913.....	4.26	2.28	7.70	3.51	3.74	1.01	1.90	4.86	4.02	6.76	5.60	2.93	48.87
1914.....	3.40	2.44	4.02	5.94	2.99	3.14	3.49	3.91	0.56	2.97	3.32	3.69	39.91
1915.....	6.85	5.32	6.21	2.16	2.27	2.96	8.59	8.93	2.99	2.49	3.90	5.86	52.52
1916.....	1.64	4.48	3.23	2.63	3.35	5.33	8.14	1.96	4.23	3.15	4.37	2.98	45.49
Mean.....	3.86	3.73	3.57	4.28	3.93	3.73	4.23	4.34	4.18	4.23	3.67	3.86	47.61
RONDOUT CREEK — ABOVE HONK FALLS AND LACKAWACK													
1906.....	2.69	2.64	3.91	4.54	4.34	5.23	5.51	4.47	2.87	4.40	2.15	4.20	47.95
1907.....	3.43	1.63	1.93	2.19	3.68	3.69	2.95	1.88	9.42	5.50	6.32	5.03	47.95
1908.....	3.12	6.24	3.53	4.02	7.64	1.75	5.08	2.59	2.64	3.74	0.72	3.09	44.16
1909.....	4.82	6.61	3.99	4.71	3.36	4.39	2.07	4.46	3.54	1.25	1.86	4.47	43.53
1910.....	7.07	4.53	1.03	8.30	3.60	4.22	2.34	4.18	5.25	1.18	3.36	2.25	47.21
1911.....	3.44	1.99	4.42	3.11	1.16	6.57	3.27	5.14	4.17	7.10	3.43	3.08	46.85
1912.....	2.24	2.41	5.86	5.77	3.59	1.91	2.82	7.32	3.79	3.92	3.02	4.78	47.43
1913.....	6.05	2.61	7.65	4.67	3.46	1.44	3.38	6.04	4.20	6.53	4.74	2.72	52.49
1914.....	3.33	2.13	3.57	4.91	2.98	4.28	4.09	4.14	0.71	2.84	2.74	3.82	39.31
1915.....	6.63	5.41	0.33	2.33	3.16	3.45	9.83	7.17	3.63	2.57	3.40	6.11	53.26
1916.....	2.35	4.87	3.84	3.64	3.71	5.76	9.08	2.19	5.31	3.25	3.95	3.61	51.56
Mean.....	4.02	3.76	3.64	4.38	3.68	3.88	4.58	4.50	4.18	3.83	3.24	3.92	47.61
SCHOHARIE CREEK — ABOVE PRATTSVILLE													
1907.....	2.05	1.54	1.04	2.33	3.46	3.27	3.28	0.78	8.29	5.51	6.08	4.66	42.27
1908.....	2.93	5.51	2.31	2.68	7.53	2.22	4.26	2.32	2.82	4.31	0.44	2.01	39.44
1909.....	4.12	4.82	3.38	4.47	4.24	4.19	1.53	3.22	3.17	1.35	1.55	4.14	40.40
1910.....	6.67	3.42	0.62	7.76	3.07	5.03	1.54	2.22	4.22	1.36	4.94	1.45	41.75
1911.....	1.85	1.13	2.13	1.43	1.43	6.09	2.06	4.16	3.21	4.69	1.90	1.79	31.95
1912.....	1.66	2.14	4.06	4.88	3.64	1.52	2.60	3.84	3.48	3.31	3.14	2.66	37.13
1913.....	2.78	2.60	5.24	3.22	3.05	1.58	1.46	3.56	3.16	3.54	5.56	1.94	38.92
1914.....	2.28	2.28	4.50	5.22	3.27	2.96	4.32	4.71	0.67	1.93	2.72	2.62	37.58
1915.....	4.18	4.09	0.23	2.21	2.19	2.34	9.01	7.50	3.77	2.32	2.53	5.54	41.90
1916.....	1.06	4.31	2.51	2.66	2.82	4.02	6.44	4.72	4.22	2.11	3.13	2.12	40.42
Mean.....	2.96	3.12	2.63	3.69	3.47	3.32	3.55	3.70	3.72	3.17	3.24	2.91	39.48
CATSKILL CREEK — ABOVE OAK HILL													
1907.....	1.92	1.28	1.16	2.38	3.25	3.15	3.31	0.85	6.58	4.18	4.91	3.52	36.49
1908.....	2.43	4.01	1.63	2.15	5.66	1.58	4.00	3.01	1.59	2.35	0.39	1.57	33.77
1909.....	3.56	8.76	2.79	3.00	3.92	3.52	2.36	2.47	2.74	0.96	1.50	3.59	34.17
1910.....	4.67	8.02	0.45	5.70	2.94	4.82	1.21	1.55	4.07	0.91	3.57	0.92	33.86
1911.....	1.32	1.13	2.07	1.55	1.41	7.06	2.20	3.38	2.94	4.32	1.45	1.87	30.70
1912.....	1.71	2.12	3.50	4.50	3.36	1.08	2.63	3.80	3.27	3.86	2.78	2.37	34.98
1913.....	2.66	1.87	4.60	3.65	3.18	2.16	1.83	1.27	2.67	4.89	4.73	1.83	34.84
1914.....	2.10	2.14	4.78	5.32	3.26	2.50	3.97	4.15	0.64	1.53	2.49	2.43	35.34
1915.....	2.40	3.31	0.09	2.03	1.51	2.60	6.93	7.20	2.78	2.22	2.66	5.66	46.73
1916.....	1.19	4.01	3.28	5.56	2.58	3.22	4.42	3.76	3.67	1.82	2.76	2.11	36.52
Mean.....	2.49	2.66	2.46	3.32	3.20	3.17	3.29	3.15	3.09	2.80	2.72	2.59	34.94

Note for Esopus creek.—Jan., 1906, to Nov., 1906, inclusive, average of 6 stations. Dec., 1906, average of 7 stations. Jan., 1907, to June, 1907, inclusive, average of 8 stations. July, 1907, and Aug., 1907, average of 11 stations. Sept., 1907, to Dec., 1909, inclusive, average of 12 stations. Jan., 1910, average of 11 stations. Feb., 1910, and Mar., 1910, average of 12 stations. April, 1910, to Jan., 1915, inclusive, average of 10 stations. Feb., 1915, and Mar., 1915, average of 11 stations. April, 1915, average of 10 stations. May to Oct., 1915, inclusive, average of 11 stations. Nov. and Dec., 1915, average of 12 stations. Jan., 1916, to Mar., 1916, inclusive, average of 13 stations. April, 1916, average of 12 stations. May to Nov., 1916, inclusive, average of 13 stations. Dec., 1916, average of 12 stations.

Note for Rondout creek.—Jan., 1906, to Dec., 1906, inclusive, average of 4 stations. Jan., 1907, to Mar., 1910, inclusive, average of 6 stations. April, 1910, to Dec., 1916, average of 5 stations.

Note for Schoharie creek.—Jan., 1907, to June, 1907, inclusive, average of 6 stations. July, 1907, to Dec., 1907, inclusive, average of 7 stations. Jan., 1908, to Mar., 1910, inclusive, average of 5 stations. April, 1910, to Dec., 1916, average of 4 stations.

Note for Catskill creek.—Jan., 1907, to Dec., 1907, inclusive, average of 6 stations. Jan., 1908, to Dec., 1916, average of 5 stations.

WATERSHEDS AT LARGE

Stations maintained by the Board of Water Supply of New York city.

Monthly rainfall, in inches, on various watersheds, for the year ended June 30, 1917

STATION	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
ROELIFF JANSEN KILL												
Silvernails.....	5.35	3.59	5.68	0.78	3.70	2.79	2.73	2.32	2.55	1.86	3.46	4.64
WAPPINGER CREEK												
Pleasant Valley.....	6.26	4.66	3.72	0.49	3.46	3.40	2.66	2.42	2.87	2.15	4.06	4.11
PEEKSKILL CREEK												
Cold Spring.....												
Nelsonville.....												
Peekskill.....	6.02	2.44	4.02	2.36	5.46	4.11	2.87	1.80	3.38	3.34	5.04	6.18
WALKILL RIVER												
New Paltz.....	5.00	2.83	3.18	1.32	4.00	3.56	3.44	2.46	4.03	2.12	2.81	
Sherwood Corners....	4.08	2.08	4.79	1.50	3.99	3.63	3.60	2.92	3.28	1.97	3.46	3.60
MOODNA CREEK												
Cornwall.....	4.98	2.43	4.96	1.58	3.22	3.63	2.76	1.72	3.11	1.64	3.70	3.80

* Nelsonville record; gage removed to Foundry brook syphon, September 1.

† Cornwall record.

§ February 4 to 13, inclusive, supplied from Nelsonville.



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